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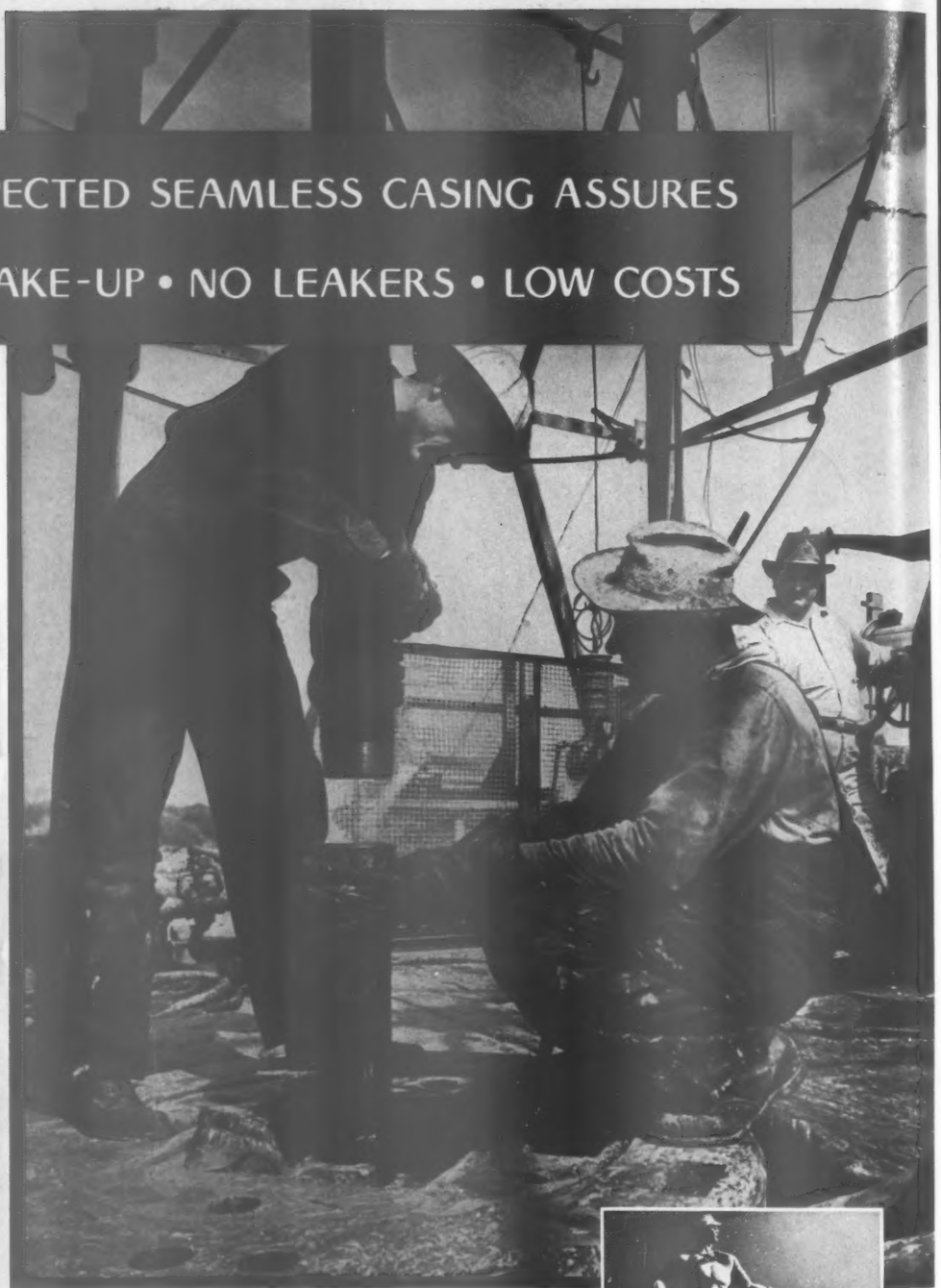

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Trends

Reduction in Fuel-Oil Needs May Aid Motor-Fuel Stocks

WITH every important oil state except Texas last week producing in excess of Bureau of Mines estimated demands, market students are endeavoring to project a level of operations for producers and refiners over the immediate future which will include any adjustments that need to be made due to excessive operations in recent months. There are those who are confident the necessary changes can be worked out by operators and state regulatory bodies with comparative ease.

CRUDE PRODUCTION *3,682,914 bbl. daily average—up 170,961 bbl. One year ago 3,281,185 bbl.*

CRUDE STOCKS *239,380,000 bbl. as of February 3—up 2,041,000 bbl. One year ago 272,214,000 bbl.*

GASOLINE STOCKS *89,337,000 bbl. as of February 3—up 1,423,000 bbl. One year ago 79,881,000 bbl.*

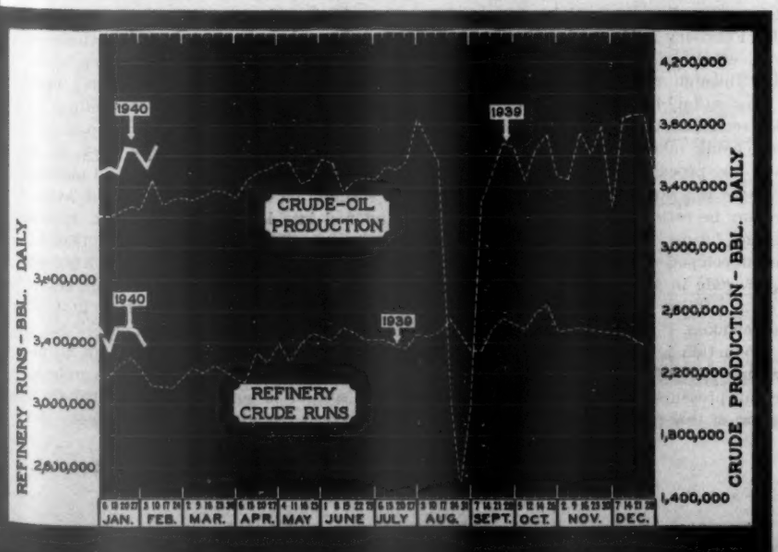
RESIDUAL FUEL-OIL STOCKS *102,536,000 bbl. as of February 3—down 479,000. One year ago 115,831,000 bbl.*

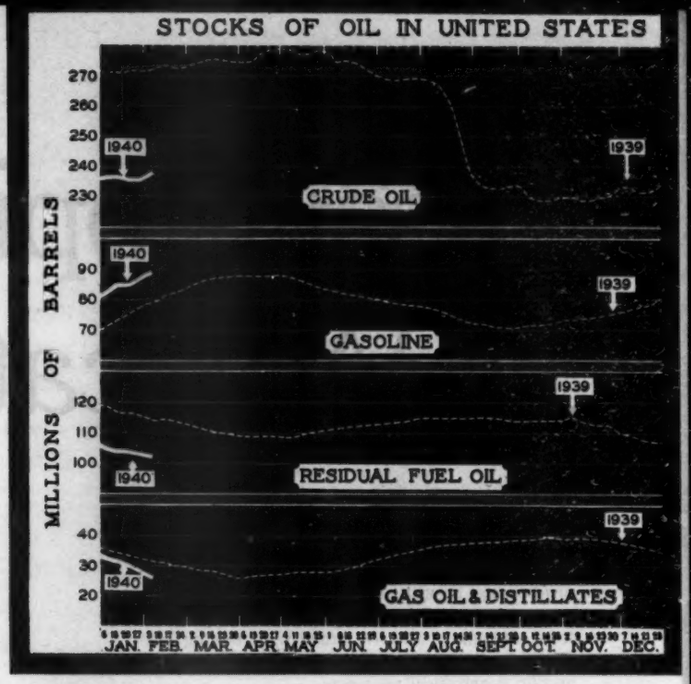
GAS OIL AND DISTILLATES *26,861,000 bbl. as of February 3—down 546,000. One year ago 32,054,000 bbl.*

REFINERY RUNS *3,395,000 bbl. daily week ended February 3—down 75,000 bbl. One year ago 3,140,000 bbl.*

(Later A.P.I. figures on refinery stocks and runs not available owing to Lincoln's Birthday holiday)

It is pointed out that in another 15 days the demands of the largest heating-oil season that the industry has ever known will decline sharply. This will mean the ending of pressure on refiners to maintain peak operations at plants in order to supply distillates, gas oil, and residual fuel oils. At the same time the seasonal rise in gasoline consumption will be under way and if there are no increases in runs to stills, the recent large additions to motor-fuel inventories will end and the gasoline statistical situation which has cast a shadow over the entire industry since late fall will show steady improvement. It is assumed that this program if carried out would shortly end the trend toward lower gasoline prices with an upturn in prospect next month and later.





The thought back of the analyses of these observors is that the gasoline-market troubles are entirely a reflection of the unexpectedly heavy demand starting last fall for products classed as fuels, and as soon as this seasonal situation is back of them refiners as a group will be willing to make any curtailment in their operations necessary to improve the inventory and price position of gasoline. In brief this program assumes that companies will not object to postponing the normal spring and summer expansion in operations until the gasoline-stock situation is corrected.

The skeptics maintain that the future is entirely dependent on what has been learned by producers, refiners and proration authorities from the experiences of 1939 and 1938. It is claimed that present gasoline stocks are 10,000,000 bbl.

DAILY AVERAGE PRODUCTION FOR WEEK

	Feb. 10, 1940	Bur. Mines Feb. est. of demand	Feb. state allowables	Feb. 3, 1940
Oklahoma City	100,900	.....	.....	87,600
Seminole fields	40,525	.....	.....	40,610
Remainder of state	289,925	.....	.....	290,265
Total Oklahoma	431,350	429,000	429,000	418,475
East Texas	400,000	.....	.....	394,598
West Texas	218,496	.....	.....	195,848
North Central Texas	132,184	.....	.....	117,000
Texas Panhandle	79,909	.....	.....	69,997
East Central Texas	78,736	.....	.....	66,940
Gulf Coast Texas	353,810	.....	.....	311,200
Southwest Texas	94,297	.....	.....	82,904
Total Texas	1,357,432	1,371,400	1,390,151	1,238,487
North Louisiana	68,910	.....	.....	68,375
Gulf Coast Louisiana	210,397	.....	.....	203,247
Total Louisiana	279,307	252,800	273,253	271,622
California	620,100	585,900	594,000	597,250
Kansas	174,650	155,500	165,000	181,600
Arkansas	69,100	60,000	70,000	70,660
Mississippi	5,100	700	.....	4,600
Eastern fields	100,900	108,900	.....	103,000
Illinois	387,017	325,500	.....	373,300
Michigan	64,928	64,500	.....	63,279
New Mexico	102,890	100,300	113,000	102,860
Rocky Mountain area	90,140	74,500	.....	86,820
Total United States	3,682,914	3,529,000	.....	3,511,953

too large. If this gasoline-stock situation is to be corrected in the next 90 days, 25,000,000 bbl. less crude should be run to stills or 275,000 bbl. daily.

Three developments having significance in current operations are being closely watched. In California no major companies have met the 4 to 15-cent reductions in California posted crude schedules made effective February 1 by the Standard of California. In Texas, operators are hopeful that out of the Railroad Commission hearing Friday will come a workable proration plan. In Illinois, the available production due largely to the new Devonian output is increasing rapidly as a major market factor for the entire industry.

Mississippi Soon to Have 37 Wildcat Tests

By GEORGE WEBER

JACKSON, Miss., Feb. 12.—Rounding out 6 months of unprecedented leasing and wildcatting, Mississippi now looks forward to several years of sustained oil exploration. Geophysical prospecting is still actively pursued throughout the state, and, although leasing is now declining, it is entering a selective stage with buying centered in the areas around prospective wildcats and on geophysical prospects.

From a legislative angle, the state is giving thought to the continued development of oil and gas, and conservation will be an important topic before the present legislature. A bill has been introduced, proposing establishment of a department of conservation, under which all resources of the state will be administered. Although no action has been taken in considering an oil conservation bill similar to the model bill brought before the last session, it is hoped by all concerned that the state will see fit to enact suitable measures to control production, prevent waste and enter its oil-production history on a sound conservation basis.

Leasing

On the discovery of Tinsley last summer, an estimated 3,500,000 acres were under lease in Mississippi. These leases, mostly for long terms, had been accruing for many years during which Mississippi's exploration was relatively quiescent. With the discovery of the state's first commercial oil production, however, interest rose to a fever pitch, and with the influx of hundreds of major-oil-company representatives and independents, leasing increased sharply throughout the state.

At this date, it is reliably estimated the leased acreage in the state has doubled since last summer, bringing the total to 7,000,000 acres. In addition to these huge holdings in wildcat territory, Alabama, which has also entered the picture, has an estimated 2,000,000 acres leased. The result of the activity of the past 6 months is only now being felt with wildcat tests, proposed and active, dotting the state.

The accompanying map indicates the wildcatting activity which is scheduled for the next few weeks. The total of 37 tests indicates the widespread interest which the campaign has caused. The activity during 1940 is reliably estimated to call for drilling 100 tests, of which about 30 may be in the Tinsley field. The remaining 70 will be wildcats drilled on blocks assembled from surface geology and geophysical data. This estimate is based on the premise that no further oil strikes will be made during the year. The chances of new discoveries, however, now greatly enhanced, will tend to accelerate drilling and leasing, and estimates of their possible effect cannot be made at this time.

Mississippi has been for several months the center of activity for geophysical shooting. A total of 70 crews are active in Mississippi and Alabama, and past work has touched practically every county in Mississippi. The findings of this widespread exploration effort will be realized only over the next several months, when lease blocks are assembled and wildcat tests proposed. Long-term leases on many blocks indicate the interest will be sustained over a period of years by a steady drilling campaign.

Leased acreage in Mississippi has doubled since summer, with a total of 7,000,000 acres now held. A hundred tests appear scheduled in the state for 1940

Tinsley Field

The Tinsley field has produced to date approximately 250,000 bbl. of oil. Its current daily average production from 18 wells was 5,091 bbl. during the week ended February 7. Although enforced proration is not in effect in the field, all wells are still producing through reduced chokes, the potential daily production being estimated at 22,500 bbl. Outlet seems assured for the crude, with the bulk still being taken by Standard Oil Co. of Louisiana, for processing in its Baton Rouge refinery. There is a strong indication that Mississippi crude may be refined within the state in the not-too-distant future. It is expected that when Tinsley has developed to a point where a long-time source of crude in sufficient volume to justify erection of a refinery is reached, such a project will be undertaken.

While Tinsley production is currently flush, indications are that artificial lift will be necessary in several of the low-pressure wells in the near future. An indication of this possibility is seen in the action last week of three wells in the Woodruff sand. Hassie Hunt's No. 1 Fair was brought in after some difficulty in making it flow. It was successfully completed, however, making 336 bbl. daily through a 1-in. choke, being one of the smallest wells in the field. Upon completion of the Fair well two nearby wells in the Woodruff zone ceased flowing. While no definite relation between the actions of these three wells can be assumed, the low pressures shown indicate pumping may be necessary soon in some producers.

Little is yet known of Tinsley's structure. Faulting and the lenticular character of the producing zones hamper correlation of subsurface data from well logs. There is a possibility the so-called Woodruff sand, of the Selma formation, as named in all current producers but one, may not be the same sand but comprise different sand bodies in the same formation, which pinch out in various parts of the field. This assumption may be supported from the difference in flowing pressures already evident in the field.

A failure and a possible new discovery commanded attention during the past week. The failure, F. E. Courson and others' No. 1 L. J. Bailey, marked the end of hopes for new production in a Jefferson Davis County area which was well thought of. The test, originally contracted for 4,000 ft., was deepened to 6,012 ft. late in the week, and after running a Schlumberger survey which showed no possibilities, it was abandoned dry.

Interest in the northwestern Alabama or Warrior basin was enhanced last week by reports of a show of oil and gas in Wilmut Gas & Oil Co.'s No. 1 Roberts, a deep test in the old Amory gas field in Monroe County, northeastern Mississippi. The test encountered a hard, cemented sand at 2,821-72 ft., carrying the odor of oil. A drill-stem test of the section was unfavorable, but operators set a string of 7-in. casing to 2,810 ft. and are preparing to drill plug and test the formation early this week. A survey run before setting casing showed the section to be at 2,814-68 ft. A slight show of oil was reported in certain sections of the hard sand body, while an odor of gas was evident in other sections.

Current Wildcats

In various sectors of the state, wildcats now under way or proposed were of interest. Although no new locations were announced this week, spudding is due to begin on several which have been long announced and delayed pending selling of spreads. In the vicinity of Tinsley outposts and wildcats are most concentrated. This week, T. B. Slick, Jr., has begun conditioning mud and moving in rig for resumption of drilling on his No. 1 Atkinson, abandoned late last year at 5,083 ft. in the Eutaw. The test will be deepened possibly 1,000 ft. A northwest outpost, Hill & Hill's No. 1 Kinkead Plantation, is drilling in a sidetracked hole below 2,730 ft. after failing to get back on bottom at 3,596 ft. An east outpost, J. R. Lockhart and others' No. 1 Frank Brooks, is drilling below 4,900 ft. in an attempt to extend Tinsley production over a mile to the east. A southeast outpost, Whigate Oil Co.'s No. 1 Robertson, is rigged up for an early test.

A new Yalobusha County wildcat is scheduled to be drilled on a block held by Henderson Oil Co. and Stewart Oil Co., with spudding due about February 18. No location has yet been announced. Late February and early March seem slated to see the beginning of many tests awaited since the first of the year. Leasing, meanwhile, is restricted generally to their immediate vicinities, with activity heaviest generally through the central section of the state, east of Tinsley.

The influx of oil interests has brought the establishment of many land and geological offices, principally in Jackson. An outgrowth of this development is the organization of the Mississippi Geological Society, which numbers over 100 members to date, composed of geologists and other technical men engaged in the state's oil development.

Conservation Measures

The first step toward establishment of adequate conservation measures to cope with the new oil industry is seen in a bill introduced to the legislature last week.

House Bill 222, entitled "Department of Conservation Act of 1940," introduced by Lumpkin and Talbot, has been referred to the conservation committee.

The bill proposes the concentration of all state conservation bureaus into one authority, the Department of Conservation. It provides for abolition of the present state Oil and Gas Board, Mississippi Geological Survey, state Mineral Lease Commission and other bodies concerned with forestry, parks, game and fish, and historical monuments, and the reestablishment of these authorities as divisions of the proposed department.

The Division of Geology, Oil, Gas and Minerals is designated to supervise conservation of all resources named. This division will be headed by the chief of division, a technically trained man of recognized standing to be appointed by the governor. The Mineral Lease Board will replace the current state Mineral Lease Commission in leasing, exploiting and exploring natural resources under state lands.

The act will be given a liberal construction and appropriations necessary to carry out the provisions of the act will be provided out of any funds not otherwise appropriated. Governor Johnson has committed his support to this bill, expressing himself in favor of conservation in the state.

●

Key to Accompanying Map

THE map at right indicates the locations of current and proposed wildcat drilling operations in Mississippi. The following paragraphs describe the location of these tests by county, the name of the operator, the lease, and give the essential information on the operations.

(1) Attala, F. R. Jackson, Federal Lank Bank: 20,000-acre block; 4,500-ft. test due to spud soon.

(2) Attala, Koscuisko Oil Co., Jones: Location.

(3) Attala, P. & M. Oil Co., J. A. McMillin: Location; selling lease spreads.

(4) Chickasaw, Burhan: Proposed test on seismograph prospect.

(5) Choctaw, Garland Anthony, Ballard: Spudded; shut down 22 ft.; 10,000-acre block.

(6) Copiah, Triangle Drilling Co., W. W. Broome: 20,000-acre block; Wesson district; spudded; arranging to resume.

(7) Copiah, S. J. Wheeless: Gulf farmout; proposed 8,500-ft. test on seismograph prospect.

(8) Hinds, Crescent Oil Co., fee: Jackson gas area; attempt completion as gasser.

(9) Hinds, G. Jeffries: Proposed test on seismograph block.

(10) Hinds, Royal Oil & Gas Co.: Proposed test on block; seismograph and gravitymeter survey.

(11) Holmes; Hawkins: Proposed test on Dennis block; seismograph survey.

(12) Issequena, W. E. Hall and others, Irby Charping: Derrick.

(13) Issequena, Tatum, Dunbar & Shadduck, Mohanna: 20,000-acre block on seismograph high, 6,000-ft. test contracted; considered one of best prospects in state.

(14) Issequena, Locke & Mellard, W. Gary: Proposed test, northeast Hardee.

(15) Itawamba, G. C. Grasty and others, Kentucky Lumber Co.: Tremont structure; drilling Trenton lime; Ordovician below 1,910 ft.

(16) Jefferson Davis, F. E. Courson and others, L. J. Bailey: Coring below 5,402 ft.; Sparta-Wilcox prospect.

(17) Jones, S. J. Wheeless and others: Proposed wildcat on block; seismograph prospect.

(18) Kemper, M. R. Crabb and others, W. T. Caldwell: Reported showing oil and gas; acidized, and bailed; no results; shut down.

(19) Lamar, Mississippi-Louisiana Oil Syndicate, Simmons: Shut down; total depth 920 ft.

(20) Lincoln, California Co.: Proposed test in "Ruth Ann" area.

(21) Lowndes, Ryan & Anderson: Proposed test on block; shooting with seismograph.

(22) Madison, Ralph Johnson: Whittington block; proposed test; seismograph prospect.

(23) Madison, Union Production Co.: Seismograph prospect; proposed test; blocked.

(24) Monroe, Willmut Gas & Oil Co., Roberts: Amory gas field; 30,000-acre block; reported hard oil sand below 3,000 ft.

(25) Monroe, Willmut Gas & Oil Co.: Proposed test on block in Rye area; subsurface work.

(26) Pike, S. R. Crouch and others, Cupit: Drilling below 2,200 ft. on 12,000-acre block.

(27) Sharkey, Eureka Petroleum Co., W. H. Cooper: 4,000-ft. test on 10,000-acre block; rigging up.

(28) Simpson, Cleve Love and others, N. E. Garner: 6,000-ft. test on 6,000-acre block; old well drilling deeper; old total depth 3,145 ft.; moving in heavier rig.

(29) Warren, W. O. Allen: Proposed test on Glass dome; surface geology.

(30) Warren, H. C. Cummings and others, T. H. Morrissey: Spudded; shut down 20 ft.; offering spreads.

(31) Wayne, Hill & Hill: Proposed test on Westbrook-Thompson block; core drilling.

(32) Yazoo, H. R. Allen, I. H. Plunkett: Location; 5½ miles northeast of Tinsley.

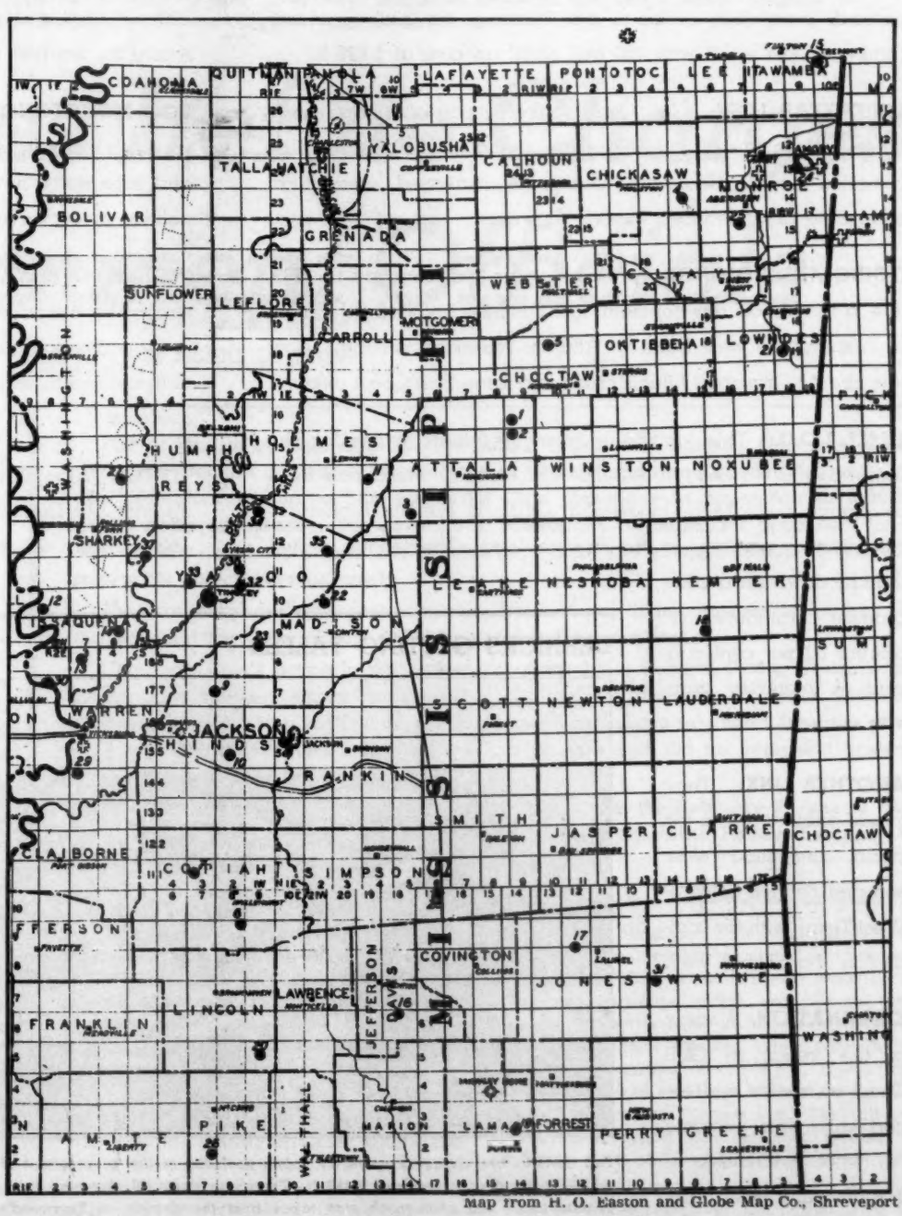
(33) Yazoo, Hill & Hill, Kinkead plantation: Drilling below 2,900 ft.; 6 miles northwest of Tinsley.

(34) Yazoo, B. B. Jones: Proposed test on gravitymeter prospect.

(35) Yazoo, Kingwood Oil Co.: Proposed test on seismograph structure.

(36) Yazoo, Robert P. Lake, Exum estate: Wildcat on 7,500-acre block; scheduled to start February 18.

(37) Yazoo, Nelson Brothers, S. S. Stoner: Wildcat on seismograph and subsurface prospect; location.



Map from H. O. Easton and Globe Map Co., Shreveport

Map showing locations of 37 wildcat tests already under way or scheduled for early start

SPARKS . . . FROM THE NEWS

CHANGING EMPHASIS: After spending lavishly for several years to exploit octane as a selling point in gasoline advertising copy, some companies now favor a more generalized appeal.

STORMS STEPS OUT: An even 2 dozen active operations now mark Illinois' Storms field, which last week was extended a half mile to the south. Some are in the testing stage.

GROWING: The shallow Hobart pool in Oklahoma continues to expand, pessimistic critics to the contrary, the sixth producer coming in last week with 150 bbl. of oil an hour at 1,128 ft.

THREE-YEAR LOW: Gulf Coast tanker export shipments have dipped to the lowest level since the spring of 1937, reports just compiled show. Coastwise shipments increased more than enough to offset reduced exports, however.

GOING AND COMING: An eastern pipe-line company in 1939, due to the Illinois development, lost business involving shipment of Texas crude west from an Atlantic seaboard terminal. Now it is about to transport Illinois crude to a large East Coast refinery.

T.I.C.L.A.O.D.: This formidable array of initials stands for The Inglewood Civic League Against Oil Drilling, which has been circulating petitions in Inglewood, Calif., to prevent further exploitation of property in the Potrero field. The league turned thumbs down on a compromise ordinance requiring 60 per cent consent of interested property owners.

ANOTHER LINK: They forged another link in the chain connecting Wasson and Bennett fields of West Texas with the completion of a 500-bbl. well.

EXPLANATION: A study of the trends in Gulf Coast coastwise and export shipments explains the price weakness in that area and other parts of the country.

2,000 MILES: Operators the first 6 weeks of this year completed 3,330 tests, representing about 2,000 miles of hole, an 11 per cent gain over same period in 1939.

THE FIRST 5,000: Mississippi's crude production passed 5,000 bbl. daily last week. Wildcat tests under way will no doubt increase the state's output in a few months.

GOOD START: Automobile manufacturers in January sold 453,120 gasoline and lubricating-oil-consuming cars and trucks—a record for the first month of the year.

TOO MONOTONOUS: There is a monotonous sameness in the weekly reports from Illinois—new peak in production, new pools and extensions, new sands, new outlets for products, and more politics in conservation.

WORKS BOTH WAYS: The rule that an excess of demand over supply boosts prices was responsible for the sensational upturn in lubricating-oil quotations in recent months. There is evidence that manufacturers should keep in mind this trend can easily be reversed.

TIT FOR TAT: Officials of western public-land states are teaming up with Mid-Continent states in their opposition to the Cole bill, and in return are seeking the latters' cooperation in fighting the current drastic restrictions on prospecting on federal-controlled land.

CRUDE AND REFINED: Mid-Continent natural gasoline has again slumped to the point where it is worth more as crude oil than as a refined product.

NO HANDOUTS: The nation's chief executive must have been shocked when eight oil-state governors called on him and asked for nothing but to be allowed to run their own business.

DERRICKS GETTING TALLER . . .

Tall derricks are springing up in the Salem pool due to the development of the Devonian lime which is found at a depth of 3,450 ft. There are about 30 Devonian tests in the area at the present time. The photograph was taken from the derrick on Kingwood's No. 20 Shanafelt, adjoining the Devonian-discovery well in the Salem pool

Acme

Governors of oil states call on President Roosevelt to protest passage of the Cole bill. Shown here are seven governors and one congressman, who were received cordially, but got no commitment. In the usual order the men are: Gov. John E. Miles, New Mexico; Gov. Homer E. Holt, West Virginia; Gov. Leon C. Phillips, Oklahoma; Gov. Nels H. Smith, Wyoming; Congressman Lyle Boren, Oklahoma; Gov. Carl E. Bailey, Arkansas; Gov. Roy E. Ayers, Montana, and Gov. Payne Ratner, Kansas

Witnesses Refute Charges of Government Officials

By HENRY D. RALPH

The governors of eight oil-producing states, Oklahoma, Kansas, Arkansas, Colorado, New Mexico, Montana, Wyoming, and West Virginia and of one oil-consuming state, Georgia, attended the hearings of the Cole committee in opposition to federal control of the oil industry. The governor of Mississippi presented his opposition by a representative and representatives of Michigan and Pennsylvania joined. Texas will present its objections next week.

The governors during a protest at the White House heard the president admit he had not read the Cole bill but did not extract further comment.

Chairman Cole's action in presenting an attack by a Federal Power Commission official upon state-regulatory bodies and declaring the Interstate Compact Commission was impotent and ineffective provoked quick and sharp rejoinders from the state witnesses who proved that the report was out of date and did not represent present conditions.

The opening sessions of the hearing were reported in the February 8 issue of The Oil and Gas Journal and the subsequent sessions which closed Friday, February 9, are reported herewith.

WASHINGTON, D. C., Feb. 12.—Unanimous opposition to federal control of oil production and vigorous defense of the way in which states are handling conservation problems was made before the petroleum subcommittee of the House committee on interstate and foreign commerce by officials of practically all oil-producing states.

The rare sight of eight state governors coming to Washington to appear in person before a congressional committee emphasized the alarm with which the oil country views the pending Cole bill, H.R. 7372, to take away from the states the power to regulate production of oil and to turn all conservation control over to the secretary of the interior. Following the governors, a dozen oil-state officials, geologists, attorneys, and members of conservation commissions explained to the committee in detail the history and operation of their state conservation laws and were unanimous in the view that the states are achieving conservation as rapidly as science shows the way, and that they are better equipped to do this job than the Department of the Interior could possibly be.

Two bombshells were thrown into the hearings by the chairman of the subcommittee, Rep. William P. Cole, Jr., of Maryland, when he filed for the record reports made by federal agencies condemning state conservation practices and endorsing federal control. The first document was from the Federal Power Commission and was prepared by C. C. Brown, principal engineer of the division of electric resources. The second was a letter from Secretary Ickes enclosing a report made by the U. S. Geological Survey and the Bureau of Mines alleging the existence of physical waste in the production of oil in many pools in states claiming to have adequate conservation laws. In his letter Secretary Ickes explained that when he testified in favor of the bill last fall he asserted that waste does exist, but this was later denied by state officials, so he asked these two bureaus of his department to obtain the facts to substantiate his statement.

State officials and representatives of the industry present at the hearing protested against submission of this sort of evidence late in the hearings, and Chairman Cole gave them permission to study these reports and to file rebuttal evidence and answering statements later.

There was particular resentment against the Federal Power Commission report, as those who examined it closely declared it was based entirely on old documents, letters, and personal opinions not substantiated by an independent investigation of the facts existing today. Later in the hearings the charges of the F.P.C. report were answered in detail by Hiram M. Dow, of the New Mexico Conservation Commission. The full text of the F.P.C. report was not made public, but Chairman Cole released Mr. Brown's summary, as follows:

"After careful review of the activities of the Interstate Oil Compact Commission and the deter-

mination from other authentic sources of the wastage of natural gas that is taking place both within the compacting states themselves and within states not in the compact, it is my definite opinion that the proper and adequate conservation of petroleum, natural gas, and other hydrocarbons, and the prevention of wastage thereof, cannot be satisfactorily accomplished through state control, either individually or by means of state compacts.

"The history of the compact here reviewed discloses nothing of a tangible nature that has been accomplished either in conservation, the prevention of waste, or even in the standardization or improvement of state legislation dealing therewith. The State of Illinois, one of the original signatory states in the compact, has, upon reaching the status of a major petroleum-producing state, dropped out of the compact, and has not yet enacted conservation legislation. Conservation legislation in other states is either inadequate or ineffectually administered.

Allege Limited State Powers

"State compacts similar to the one here reviewed have no authority, no power, and no means of enforcing anything. They can neither compel nor retain the membership of the oil or gas-producing states. Neither can they prescribe or enforce state legislation. Under these conditions they are powerless to accomplish anything under the interchange of information, ideas, and suggestions.

"It is my firm conviction that the only method of effectually, impartially, and definitely solving this problem will be the enactment and administration of federal legislation.

"Petroleum and natural gas, unlike coal, metals, and other solid minerals, are migratory commodities that do not respect state lines, and the extent of their migration or drainage is limited only by the physical underground boundaries of the pools in which they occur. Numerous examples exist where these pools extend on either side of state lines. One noticeable example is the largest natural-gas field in the country. This field extends from southwestern Kansas, through the Oklahoma Panhandle, and on down into the Texas Panhandle. In Kansas it is known as the Hugoton field and in Texas as the Texas Panhandle field.

"It is my further conviction that the most feasible, economical, and fair method of developing and operating the oil and gas pools of the United States is that of unitized operation.

"It is therefore my recommendation that appropriate federal legislation be enacted, completely controlling the production, conservation, and wastage of petroleum, natural gas, and other hydrocarbons, in the United States."

What seemed to interest the committee most in the details of state conservation methods was the fixing of gas-oil ratios. Several of the committee members appeared to have the idea that one of the most important things in oil conservation is a uniform gas-oil ratio and that this could be brought about through federal control, but not through state regulations. This conception was pretty well dissipated by many of the state technical men, who pointed out the states have fixed satisfactory gas-oil ratios wherever this has been necessary and who insisted that a uniform ratio cannot be applied to all fields but must vary with local conditions.

Aside from the technical aspects of conservation, the committee was extremely interested in the extent to which the states administer proration and determine allowables on the basis of economic conditions and the price of crude oil. The charge was made time and again from the committee bench that state conservation is a cloak for price control, and the shutdowns during August 1939 were viewed as proof of this contention. Under the Cole bill economic and price factors would not be considered by the Department of the Interior in fixing allowables and production quotas, and members of Congress from states which do not produce oil appeared to have a view that consumers would benefit by lower gasoline prices if states were deprived of their power to balance oil production with demand.

To this charge the state officials entered not a denial but a vigorous defense. They not only admitted that they attempt to prevent overproduction, they boasted about it. Every official questioned on this matter insised that overproduction and storage aboveground constitute avoidable physical waste and that the price of crude oil must be kept in line with cost of production in order to compensate producers for employing those conservation methods which will result in the greatest ultimate recovery. Some officials even declared it is their duty under their conservation laws to curtail production when overproduction is evidenced by a price cut.

The August shutdowns did not injure the consumer, all the witnesses insisted, and several went into detailed explanations of the trend of crude-oil and gasoline prices as compared with other raw material prices during recent years to show that the advent of strict conservation measures and curbs on oil production have not resulted in increased gasoline prices.

Chairman Cole announced that the Illinois state geologist would file a brief against the Cole bill later. Hearings will resume February 19, at which time Col. Ernest O. Thompson, of the Texas Railroad Commission, will appear. Colonel Thompson has already filed an extensive brief holding that the Cole bill is unconstitutional. Following his appearance, the committee will hear representatives of the oil industry itself, and 18 witnesses have been scheduled through the cooperation of the American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, and other associations.

Gov. Leon C. Phillips of Oklahoma told the committee the proposed legislation is unjustified and unnecessary, that conservation is generally approved and practiced under present systems, that the Cole bill would mean additional expense which would be passed on to the consumer, and that in his state the regulatory bodies and the oil industry are working together for conservation in a laudable manner. He said he had the definite promise of authorities in five states—Arkansas, Wyoming, Montana, Kentucky, and Mississippi—that those states will become parties to the Interstate Oil Compact.

State Regulation Defended

The governor said that "We'd rather take the hurt of nonregulation in a couple of states than the chances embodied in this bill."

"Would you object to a bill setting up a formula for conservation?" Chairman Cole asked.

"No," said Governor Phillips, "but it just isn't necessary. We are already doing it."

"What would you think if Congress should lay down the form the interstate compact should take?" queried the chairman.

Governor Phillips said he would not be able to say without knowing what the provisions of the legislation would be.

The governor said his objections to the Cole bill are not based upon disagreement with any announced formula for conservation, but that it would be a dangerous extension of federal power.

Warwick M. Downing, of Denver, chairman of the Conservation Commission of Colorado, attacked the Cole bill on the basis of the inadequacy of federal oil control on the public domain and the fact that the legislation refuses to recognize price as a factor in conservation.

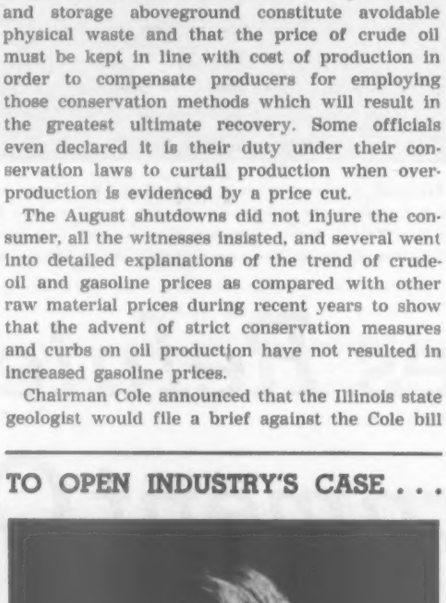
"Federal control," he said, "has meant the destruction of the oil and gas industry on the public domain, insofar as future development is concerned. No self-respecting operator would accept such a lease. No sensible operator could pay such royalties and hope for success. No one in business will voluntarily become a slave of a public official when he can do business elsewhere as a free man."

Turning to the price question, Mr. Downing said:

"Federal control will mean that the price for crude as an important element of conservation will be ignored. Nothing more forcibly illustrates the lack of understanding at Washington than the assertion so often made, that the price of crude is not an element of conservation, and that price must always be 'taboo' among conservancy officials. . . . The cheaper a commodity is the more readily it is wasted. Particularly is this true because cheap crude means skimming or partial refining. A higher price necessitates a greater utilization of petroleum by cracking. . . . Of what value is new production, if it lowers the price so that marginal wells producing in gross the same or greater amount, are necessarily abandoned or lost? . . . Necessary future development depends entirely upon a fair price."

William S. Rial, deputy attorney general of Pennsylvania, representing Governor James, attacked the Cole bill as an invasion of states' rights.

TO OPEN INDUSTRY'S CASE . . .



George A. Hill, president of Houston Oil Co., will be the first witness presented by the oil industry when the Cole committee resumes its hearings February 19. He will offer an analysis of the Cole bill and outline the evidence which the industry will present through 18 witnesses representing the American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association and other oil organizations.

He said there is no necessity for it as far as his state is concerned, that there is no appreciable waste in Pennsylvania for the industry has accomplished its own conservation. The problems of the industry, he declared, do not lend themselves to federal control.

Dr. R. A. Smith, representing Governor Dickinson of Michigan, in response to committee questioning, declared the Michigan emergency proration order of August 1939 was entirely independent of the general shutdown and was dictated by a local Michigan situation.

There is no need for federal regulation in Wyoming, according to James B. Griffith, commissioner of public lands, who said that the state is doing a good job of conservation, and that the large producing companies operate under an effective voluntary agreement, in cooperation with the state government.

Glenn Staley, proration umpire for New Mexico, in response to questions as to gas wastage, explained oil cannot be produced without producing some gas and there must be some wastage of the gas if there is no market for it, because "you can't plow it under."

Robert P. Jackson, secretary of the Oil Conservation Board of Montana, said the Montana board has acted to prevent waste in the state, and federal control would be unwarranted there.

Years of consistent, sustained, individual and organized effort have conquered the problem of avoidable waste in Oklahoma oil fields, according to a statement by Reford Bond, chairman of the Corporation Commission of Oklahoma, presented by Earl Foster, a member of the committee.

Declaring "the proposed bill is drastic beyond the necessity and practicability at this time," William J. Armstrong, oil and gas conservation officer of the Corporation Commission of Oklahoma, said: "The proposed law says nothing about common interest, about correlative rights or market demand. Our Oklahoma law defines a common source of supply to be a community interest and directs the state authorities to protect the correlative rights of the owners. If the Congress should find that this type of legislation is necessary, then it would be essential that some provisions be made to compensate the unfortunate lease and royalty owner whose property, under these rules, could be confiscated. It is impossible and impractical for the taxpayers of the United States to have to pay for these properties. At the same time, it is unfair that they be confiscated without being compensated. This bill would retard the discovery and development of unknown reserves because of the uncertainty it would create. It would, in a manner, reestablish what is known as 'carpet-bag rule' from Washington, so much detested in Oklahoma and the Indian Territory before statehood. There must be some certainty as to what the wildcatter can do with his well if he discovers a new pool, or he will not risk his money in prospecting in new reserves."

Elwood Foutts, Houston, Tex., presented a statement on waste and waste prevention in which he concluded that the states have worked out a satisfactory system and should not be disturbed by such legislation as the Cole bill.

Waste prevention, he said, comes back to the requirement that all wells must have a fair and equitable outlet, and it appears that the oil states have succeeded in bringing about a state of affairs wherein the essential of connected wells with a ratable place in the market may be permanently relied upon for successful enforcement of waste prevention, unless such legislation as the Cole bill intervenes.

Opposition of the newest oil-producing state – Mississippi—was expressed by H. M. Morse, state oil and gas supervisor, appearing as the personal representative of Gov. Paul B. Johnson. A first-class conservation bill is now before the legislature, Mr. Morse told the committee, declaring it had been prepared in cooperation with the Bureau of Mines and is based on the experience of other oil states. While Mississippi is new in oil production, it has been conserving gas for many years, and its gas conservation act gave the state authority to apply the best conservation methods to oil production when the new wells were brought in. He feels confident that it can handle the conservation problem without federal legislation. Mr. Morse told the committee the governor and the entire State of Mississippi are completely opposed to the Cole bill.

Hiram M. Dow, former lieutenant governor, representative of the governor of New Mexico on the Interstate Oil Compact Commission, asserted that New Mexico's conservation laws are among the best in the country and are fully adequate to prevent avoidable waste in production. He singled out for criticism and answer a number of statements derogatory of state attempts at conservation contained in the energy resources reports of the National Resources Planning Board, and he particularly defended the action of the states in attempting to use conservation regulations to stabilize the price of crude oil, declaring market stabilization is an essential feature of conservation in order to provide an economic incentive for complete recovery of oil.

"New Mexico's production quotas," he said, "are based upon Bureau of Mines estimates of demand and do not operate to raise prices. On the contrary, consumers benefit through maintenance of steady price levels. If the price of crude falls below the cost of production it is the duty of a conservation body to restrict production sufficiently to bring up the price in order to continue operation of marginal wells," Mr. Dow said. Mr. Dow told the committee that the state owns 42 per cent of the oil-producing lands within its borders and the revenue goes to the maintenance of state institutions. New Mexico is not going to sit by and see the oil from its state lands taken at an unfair price, he declared.

Chairman Cole asked why New Mexico did not consider establishment of oil and gas ratios until last fall after hearings on the Cole bill started, although having such power since 1935. Mr. Dow replied that the Conservation Commission had in effect been operating on an oil-gas ratio but got "buck fever" when hearings on the Cole bill started and decided to start official proceedings to fix an oil-gas ratio.

The report of the Federal Power Commission engineer, previously introduced, which found much fault with state conservation practices, was roundly condemned by Mr. Dow. He answered in turn each charge made in this report:

Charge: "States cannot properly conserve oil."

Answer: "The record of the hearings already held by the Cole committee shows that the states are moving toward conservation as rapidly as science shows the way, and their conservation record is better than that of the federal Government on public lands."

Charge: "The history of the interstate oil compact shows that nothing has been accomplished."

Answer: "The compact members have worked untiringly to promote conservation and have been successful in inducing a number of states to pass adequate and modern laws. Above all else the compact has changed the attitude of the oil states from one of hostile competition to one of friendly cooperation."

Charge: "Illinois dropped out of the compact and has not passed conservation legislation."

Answer: "Illinois will learn by experience as have other states and probably much sooner, and will take corrective steps before much waste occurs. Illinois has never officially dropped out of the compact but has not sent representatives to the last three or four meetings. The Illinois situation has caused the Government to lose its sense of proportion. Illinois reserves are only 3 per cent of those of the United States, and amount to less than 5 months of United States total consumption. To sell out our birthright of state sovereignty to prolong our oil supply for a few days is to give away our liberties for nothing."

Charge: "The compact commission has no power."

Answer: "This nation came into being through resisting a government with the power proposed in the Cole bill. We do not believe in this type of compulsion but feel better results can be achieved through cooperation."

Charge: "Under the compact the states are powerless except to exchange information."

Answer: "The Cole bill gives no additional rights or powers to the states and would take away from them the present powers, making them only advisory to the Department of the Interior."

Charge: "Oil is migratory and does not respect state lines."

Answer: "Under the compact the problem of regulating interstate pools has been solved."

Charge: "Unitization is the best method of developing a pool."

(Continued on Page 106)

FRANK ANSWERS PLEASE COLE COMMITTEE

Sharp colloquy between Representative Wolverton, New Jersey, and A. Andreas, state geologist and member of the New Mexico Oil Conservation Commission, enlivened the hearings of the Cole committee.

Wolverton: "It appears that you are using conservation as a cloak to cover price stabilization."

Andreas: "The two things are the same."

Wolverton: "Conservation appears to be secondary to price."

Andreas: "No, they are interwoven."

Wolverton: "The August shutdown was not recommended by Bureau of Mines' monthly forecasts of demand. What caused you to lose confidence in these forecasts?"

Andreas: "The price cut. Under the New Mexico law it was our duty to shut down the wells when we have evidence of overproduction, and a reduction in price is evidence of overproduction. We had nothing else to do under our law."

Committee members thanked Mr. Andreas for his frankness in answering questions.

MAP OF ARKANSAS

Reproduced on Page 49 of this issue is a color map of 16 southwestern counties, showing oil fields, extensions and prospects in these counties

Performance vs. Octane Number

By W. T. ZIEGENHAIN

THE practice of posting big numbers at filling stations to indicate motor-fuel octane values and thereby hoping to attract more business is losing caste. Refiners, marketers and consumers alike see the futility of trying to indicate gasoline quality by means of a single number. Yet they are appreciative of the fact that modern cars demand gasolines of relatively high antiknock value. Also they recognize the octane number as the sole index of antiknock value. The unfortunate part of the story is that these same marketers and consumers tend to overemphasize its importance and do this without regard to other gasoline properties.

Years ago certain refiners initiated the practice of posting numbers because their gasolines happened to be of relatively high value. This was the natural result of processing a certain type of crude or the manner in which the crude was processed.

This type of promotion simply took gallonage away from the competitor who was not so favorably situated. However, the benefits were usually of short duration. The competitor soon met the higher values by installing special equipment or by adding more tetraethyl lead to his gasoline. The cycle continued to live, and now the refining industry finds itself making better fuels than even the newest cars can properly utilize. Also, the fuel cost is climbing to a point above the price at which the manufacturer can sell it and make a reasonable profit. Obviously, the economic soundness of such a program is subject to attack.

Probably the most disturbing factor in the gasoline-market program at present is the lack of correlation between laboratory octane values and performance on the road. The latter is the test the consumer can make.

The second most disturbing fact is that the refining industry has no single, approved laboratory method for testing. The four methods that have risen to a point of general recognition are found to give widely different octane numbers on the sample of gasoline. Obviously, the refiner uses the one that gives his gasoline the highest rating.

However, these discrepancies have been known for some time and the industry is adjusting its manufacturing and marketing procedure to take care of them. It now proposes to stress performance instead of octane.

More recently the industry learned, however, that other factors of discord lie in the road toward a solution of the octane race and, while they are technical in nature, they are said to be readily apparent to the motorist.

Automobile engines are being made of progressively higher compression ratios and apparently we have reached a point where the space left in the head of the cylinder after the piston reaches its uppermost position is so small in the modern car that the inclusion of even the smallest quantity of carbon or metallic scale greatly affects the octane requirements of the motor. This also suggests that as the compression ratio is further increased by the motor manufacturers that the problems of the refiners will be even more severe. This increase seems inevitable.

Stated in another manner, the refiners of 10 years ago had but few gasoline-knocking complaints. Then an engine of 4.2-to-1 compression ratio could accumulate a deposit of carbon ⅛ in. thick and covering the cylinder head, but it took up only about 5 per cent of the void space. The same quantity of carbon in the modern 7.0-to-1 motor takes up about 9 per cent of the void space, and this is enough in the present-day motors to require a fuel as much as 15 octane numbers higher.

Despite this complication, automotive engineers say future cars will be of moderately higher compression ratios and justify this move on the better performance of such motors, upon the wide availability of suitable fuels and because the cost of the higher-compression motor is less to the car manufacturer. This will call for further studies in the matter of fuel distribution.

Fuel Distribution

Refiners naturally turn to tetraethyl lead in order to meet the higher octane requirements of motor fuels. In actual practice it has been shown that eastern refiners have doubled the lead concentration in the past year. The use of lead will undoubtedly increase among a large number of them during 1940. This statement is made on the premise that motor-fuel octane values will continue to rise and those refiners who do not choose to install catalytic cracking units, polymerization plants and alkylation units will have no apparent alternative if they choose to meet the competition. Also, it might be pointed out that an impressive number of such units is being installed or is on the drafting boards among refiners in every section of the country, so the assumption appears sound.

It is known that gasolines made by different processes do not show the same benefit when lead is added and this property has been called "lead susceptibility." Gasolines containing a relatively large proportion of straightrun and natural gasoline and a small proportion of cracked gasoline generally show the higher lead susceptibility. Whether this characteristic is a function of the structural nature of the hydrocarbons in the gasoline, or is a function of the volatility of the individual hydrocarbons, has not been determined, but in recent months work has been conducted to show the extent to which the heavy gasoline fractions and lead vary among the cylinders of a multicylinder motor. This work was reported by technologists of the Ethyl Gasoline Corp., and Standard Oil Co. (New Jersey), at the past two annual Detroit meetings of the Society of Automotive Engineers. The unevenness of distribution of the lead is to be expected because the compound has a definite boiling range and falls in the higher portion of the gasoline boiling range. However, this is a favorable factor. The lighter hydrocarbons in gasoline, including propane, butanes and pentanes, do not need the lead to improve their antiknock characteristics as much as the hexanes and higher-boiling fractions do. Roughly expressed, the lighter fractions in this low range have a natural octane value of from 90 to 60 while the heavier hydrocarbons have a combined octane value of about 40.

Therefore, since the lead is needed mostly in the heavier fractions and since tetraethyl lead boils at about 392° F., any fractionation of the gasoline inside the engine will generally cause a favorable distribution of the lead.

Data are available to show that the cylinders of a multicylinder engine do not receive the same mixture. Those cylinders nearest the intake manifold receive a relatively high proportion of heavier hydrocarbons, while the more distant ones receive a high proportion of relatively light fractions. The octane requirements of the nearest and farthest cylinders in the same engine have been found to vary in one engine in the order of 54 and 72.

If these data are representative they explain why laboratory results on a one-cylinder test engine do not always agree with road tests and why gasolines of like octane values in a laboratory engine will not perform similarly on the road. It also explains why heavily cracked and catalytically cracked gasolines exhibit a different set of road results from straightrun or lightly cracked and leaded gasolines. It also explains why many of the larger refining companies have used road tests instead of laboratory tests in determining their production needs. In recognition of these discrepancies several companies maintain test fleets of 6 to 15 automobiles of representative style and age. These cars go from one refinery to another, checking the gasoline production of each refinery. In each instance, when the correct blend and lead content of each grade of gasoline is determined by road performance, the octane value of that gasoline is found on the laboratory engine and this number is established as the minimum for control on that grade of gasoline. Thus the road test determines the specifications while the laboratory test is used only as the refinery-control medium. As a result it is easy to have different octane values in the same grade of gasoline made by the same company but at its different refineries. Recognition of road tests as a medium for setting gasoline specifications is not new, but up to the past year such tests have been used more as a check than as a control medium. It is also proving to be an expensive control medium.

Type of advertising used by one major refiner and marketer to combat the "over-emphasizing" of motor-fuel octane number to the exclusion of the other important properties of the gasoline

World Oil Consumption During 1939

By V. R. GARFIAS, R. V. WHETSEL and J. W. RISTORI
Cities Service Co.

PART OF PAPER
Presented before A.I.M.E. Annual Meeting, New York, Feb. 12-15.

WORLD consumption of petroleum and related fuels for civil purposes in 1939 was close to 2,024,000,000 bbl. or approximately 110,000,000 bbl. more than in 1938, the United States accounting for 96,000,000 bbl. of the increased amount.

It should be noted that with the annexation of Czechoslovakia and part of Poland, civil consumption in Germany during 1939, notwithstanding severe rationing in the last 4 months of the year, was 54,000,000 bbl., or only 1,600,000 bbl. less than in 1938 and that domestic production of petroleum and related fuels was some 34,000,000 bbl. short of civil consumption. The mounting petroleum requirements of the military forces of greater Germany are, of course, not included in these figures of civil consumption. To supply this deficiency Germany now must rely almost exclusively on the Rumanian fields, which in 1939 produced about 35,000,000 bbl. in excess of the Rumanian civil consumption. However, these fields are supplying and have supplied for years the oil requirements of the neighboring Balkan states and part of the Italian needs, thus reducing the balance available to Germany.

Should Italy go to war as an ally of Germany the available Rumanian supply would be insufficient to take care of the requirements of Germany and Italy even assuming that the Balkan states were entirely deprived of their oil requirements. These conditions seem to assure the continued neutrality of Italy as long as that country is not assured—while at war—of its needed civil and military oil supply from other sources than Rumania—a condition which practically would mean the effective control of the Iraq fields and the eastern Mediterranean by the Axis powers.

Foreign military consumption, and possibly additions to foreign stocks, aggregated 168,000,000 bbl. in 1939, or 11,000,000 bbl. more than in the preceding year.

The effect of the 4-months-old European war has been to decrease the civil consumption in the belligerent countries and to increase it in the neighboring neutrals. The civil consumption in the United Kingdom, France, and Germany has decreased some 7,400,000 bbl., while civil consumption in Italy, the Netherlands, Sweden, Norway, Denmark and Belgium has increased the aggregate close to 4,000,000 bbl.

TABLE 1—WORLD PETROLEUM BALANCE SHEET
(In thousands of barrels)

	World production of petroleum and related fuels	World civil and U. S. military consumption	Excess production over consumption			United States: Excess exports over imports	United States: To stocks	Foreign military consump'n and additions to stocks
			U. S.	Foreign	World total			
1932	1,362,039	1,348,407	*13,011	26,643	13,632	28,781	*41,792	55,424
1933	1,467,128	1,406,923	67,427	*7,222	60,205	60,254	7,173	53,032
1934	1,562,834	1,507,599	26,164	29,071	55,235	64,013	*37,849	93,084
1935	1,702,793	1,614,475	53,027	35,291	88,318	75,474	*22,447	110,765
1936	1,864,997	1,795,560	52,209	17,228	69,437	74,890	*22,681	92,118
1937	2,121,337	1,914,856	161,445	45,036	206,481	115,677	45,768	160,713
1938	2,062,090	1,914,007	130,343	17,740	148,083	139,420	*9,077	157,160
1939	2,149,700	2,023,883	88,000	37,817	125,817	130,000	*42,000	167,817

*Reduction.

TABLE 2—WORLD PRODUCTION OF PETROLEUM AND RELATED FUELS
(In thousands of barrels)

	1938			1939		
	Crude oil	Related fuels	Total	Crude oil	Related fuels	Total
United States	1,212,970	52,000	1,264,970	1,258,000	52,000	1,310,000
Russia	209,000	1,000	210,000	222,000	1,000	223,000
Venezuela	189,100	900	190,000	199,000	1,000	200,000
Iran	75,000	1,000	76,000	81,000	1,000	82,000
Netherland East Indies	55,600	2,000	57,600	56,700	2,000	58,700
Rumania	48,500	700	49,200	49,000	1,000	50,000
Mexico	37,000	1,000	38,000	35,000	1,000	36,000
Iraq	30,900	.....	30,900	30,000	.....	30,000
Colombia	21,500	600	22,100	24,300	700	25,000
Germany	4,300	13,000	17,300	5,000	15,000	20,000
Trinidad	17,800	200	18,000	18,700	300	19,000
Argentina	16,300	400	16,700	18,000	400	18,400
Peru	16,000	1,200	17,200	15,000	1,200	16,200
British India	9,860	140	10,000	10,050	150	10,200
Canada	5,000	3,000	8,000	5,100	3,000	8,100
British Borneo	7,180	150	7,330	7,800	.....	7,800
Bahrein Islands	8,480	.....	8,480	7,600	.....	7,600
Egypt	3,820	150	3,970	4,600	.....	4,600
Poland	2,530	150	2,680	3,850	150	4,000
Japan	2,260	.....	2,260	2,900	200	3,100
Ecuador	1,540	60	1,600	2,200	.....	2,200
Others	2,100	7,700	9,800	6,300	7,500	13,800
Total	1,976,740	85,350	2,062,090	2,062,100	87,600	2,149,700

TABLE 3—WORLD CONSUMPTION OF PETROLEUM AND RELATED FUELS, 1939
(Thousands of barrels)

	Motor fuel	Kerosene	Gas and fuel oil	Lubricants	Miscellaneous	Total
United States	554,000	60,000	455,000	24,500	139,500	1,233,000
Russia	28,000	44,000	67,000	9,600	22,000	170,600
United Kingdom	46,800	7,000	29,900	2,900	4,400	91,000
Germany	24,200	800	18,100	3,800	7,100	54,000
Canada	24,000	700	17,080	4,100	5,000	50,800
France	24,800	1,700	16,900	2,200	4,400	50,000
Argentina	7,600	1,300	17,500	550	1,900	28,850
Japan	8,000	1,500	12,000	1,800	2,100	25,400
Netherland West Indies	270	55	17,500	55	5,300	23,180
Italy	5,700	1,000	12,200	1,000	1,900	21,800
Mexico	3,500	800	12,700	200	1,400	18,600
British India	2,700	7,200	4,200	1,000	1,400	16,500
Rumania	1,100	1,250	10,500	230	1,900	14,980
Australia	7,900	1,300	3,900	500	1,150	14,750
Netherlands	3,900	2,100	4,100	500	1,200	11,800
Netherland East Indies	1,500	2,000	6,200	250	1,500	11,450
Iran	650	1,300	6,000	450	2,700	11,100
Sweden	4,800	900	3,700	450	800	10,650
Venezuela	1,150	40	8,000	40	300	9,530
Brazil	2,900	900	4,500	280	150	8,730
Union of South Africa	4,300	500	1,800	300	400	7,300
Denmark	2,900	900	2,800	350	250	7,200
Belgium	4,300	350	1,500	350	450	6,950
China	1,400	2,900	1,750	300	400	6,750
Egypt	850	2,200	2,900	250	500	6,700
Cuba	800	100	4,800	60	140	5,900
French West Africa	400	100	5,200	50	20	5,770
Chile	750	100	4,300	80	150	5,380
Norway	1,600	400	2,800	130	200	5,130
Trinidad	140	80	4,400	40	450	5,110
Spain	2,600	200	1,600	160	140	4,700
British Malay	1,000	300	3,000	130	200	4,630
New Zealand	2,400	200	1,400	100	200	4,300
Iraq	350	250	2,700	60	800	4,160
Hawaiian Islands	1,200	200	2,500	140	100	4,140
Philippine Islands	1,000	450	2,300	170	140	4,060
Switzerland	1,800	180	1,400	160	100	3,640
Poland—Included in Germany and Russia.						
Colombia	930	135	2,150	27	135	3,377
Ceylon	370	250	2,600	30	10	3,260
Panama Canal Zone	130	30	2,900	30	40	3,130
Uruguay	550	250	1,800	45	45	2,640
Greece	550	150	1,700	60	140	2,600
Peru	500	200	1,550	30	250	2,530
Irish Free State	1,200	550	350	80	250	2,430
Czechoslovakia—Included in Germany.						
Finland	1,200	620	140	130	140	2,230
Hungary	650	500	700	120	120	2,090
Algeria	1,000	300	480	90	120	1,990
Puerto Rico	550	90	1,150	40	50	1,880
Palestine	400	450	690	30	200	1,770
Jamaica	230	60	1,400	10	40	1,740
Portugal	650	440	400	80	80	1,650
French Morocco	900	100	340	50	150	1,540
Hongkong	260	70	850	100	20	1,300
Turkey	360	330	450	60	20	1,220
Kenya and Uganda	400	150	600	30	10	1,190
Siam	200	370	370	60	60	1,060
Miscellaneous	6,301	3,107	4,756	705	847	15,716
Total	798,541	153,407	799,426	59,042	213,467	2,023,883

Consumption figures include crude consumed as such, all its products and related fuels such as benzol, natural gasoline, alcohol used as motor fuel. Oil delivered to ships' bunkers is included in consumption of country where deliveries made.

STATE CAPITALS...

OKLAHOMA

PRORATION PRACTICES followed by the Corporation Commission in regulating Oklahoma oil production were upheld by the state Supreme Court Tuesday as it ruled that the commission has authority to establish minimum well allowables in excess of 25 bbl. daily.

The decision, regarded by proration officials as of major importance, was handed down in a case brought by the Grison Oil Corp. and H. I. Grimes against the Corporation Commission.

The Grison suit attacked an order of the commission issued June 28, 1938, fixing a marginal daily allowable of 165 bbl. per well for all wells in the Oklahoma City field producing from the Wilcox zone.

TEXAS

NOT UNTIL FRIDAY, FEBRUARY 9, did Atty. Gen. Gerald C. Mann give his opinion that the Texas Railroad Commission, two members of which were in Washington, must return to Texas before it could rescind the state-wide oil-proration order for February.

Mr. Mann held commission members could delegate authority to sign the order, a purely mechanical function, but the decision to alter state-wide allowables would have to be made at a meeting attended by a quorum within the territorial limits of the state.

CONFLICTING IDEAS on how oil production in East Texas should be prorated were presented to a three-judge federal court Tuesday, February 13, as three separate plaintiffs outlined their positions in suits attacking the validity of the current proration plan.

Upon only one thing were the plaintiffs—Humble Oil & Refining Co., F. W. Fischer, and Rowan & Nichols—agreed: That the current order confiscates their respective property in violation of the federal Constitution which says that no man's property may be taken without due process of law.

But their reasoning was different. Humble and Rowan & Nichols, generally agreed on the proposition that their allowed production was not in proportion to their ownership of oil in place; while Fischer took the position that his right to capture all the oil he could was curtailed by the commission, thus depriving him of potential property.

On the bench were: Circuit Judge Samuel Sibley of Atlanta, Ga., who heard the appeal of the previous Rowan & Nichols case; Judge R. B. McMillan of San Antonio, who has heard several oil cases, including the first Rowan & Nichols case, and Judge James V Allred of Houston, on his first oil case.

ILLINOIS

A COPY OF A RESOLUTION adopted by the directors of the Illinois-Indiana Petroleum Association in opposition to the Cole bill was recently forwarded by Lee Mulvihill, executive secretary, to all members of Congress from the states of Illinois and Indiana.

The resolution declares that "we are unalterably opposed to the enactment of the bill upon the grounds and for the reasons, among others:

"The concentration of power at Washington, D. C., to control the production and transportation of petroleum throughout the United States, in an individual to be appointed by the president and designated 'the commissioner,' but to be clothed with dictatorial power as set forth in H.R. 7372, is not now justified by the conditions and practices generally prevailing in the petroleum-producing states, and we believe that at any time and under any circumstances the subordination of the sovereign powers of the states over their petroleum industries, to federal authority such as proposed by the terms of said H.R. 7372 would be subversive of our constitutional form of government.

"The practices and methods pertaining to petroleum prospecting, production and conservation of deposits generally approved and now prevailing throughout the country have been devised and adopted by men possessing the practical experience necessary to qualify them as leaders and teachers concerning such matters. Progress in the discovery of new principles and improvement of mechanical appliances and operating practices has been rapid and gratifying under our long-established competitive system, especially during the last few years, and may reasonably be expected to continue if not balked or disturbed by the inauguration of a system entirely alien to our general governmental system and under which the public could have no assurance that individual enterprise, initiative and experiment might remain active or even be permitted to survive."

ARKANSAS

THE ARKANSAS STATE-WIDE oil and gas hearing, scheduled for February 16, has been postponed until February 21 at 10 a.m. in the Union County Courthouse, El Dorado. This action follows receipt of petitions from many oil and gas operators, landowners and royalty and leaseholders in the state.

KANSAS

NOW THAT THE CORPORATION COMMISSION has issued its long-deliberated gas-proration order for the Hugoton field, one of the world's largest gas reserves, members are wondering what court tests will come of it.

There undoubtedly will be some, a member of the commission indicated. Republic Natural Gas Co., one of the field's early developers, has a federal court suit pending which challenges constitutionality of previous gas-proration regulations.

Whether Republic will drop its suit or amend its complaint, based on the new order, is problematical.

Criticism already has bobbed up from western producers on the order, effective February 1.

The five zones into which the field was divided to facilitate proration in accordance with location of production units and pipe lines, appear to be the more controversial issue, early comment reveals.

Interpreting the 1935 proration law, the commission said the statute "not only authorizes but directs the commission to prevent waste in any common source of supply of natural gas and independently of waste to establish ratable production therefrom so that undue drainage can be prevented and correlative rights therein protected."

Commissioner Arnold Jones explained that sound conservation practices made it necessary to deny operators of oil and gas wells the right to produce on a get-all-you-can basis, which he termed the law of the jungle. It devolved upon the state to protect for each producer his fair share of the state-wide market demand, he asserted. Thus the monthly market demand is allocated—on a monthly basis for oil and longer periods for gas.

Present and past production in the Hugoton field is and has been "inequitable and unfair," has caused "unreasonable discrimination" against various developed properties, the commission held, "denying many owners of developed properties the opportunity to produce at least approximately the amount of gas underlying their developed tracts."

Zoning the field, the commission held further, is an attempt to distribute more equitably production and market benefits by recognizing distances between the areas of development and location of purchasers' facilities.

Sensing possible objection to the zoning feature, however, the commission added a safeguard to its order providing that should the zoning be judicially determined to be invalid, the general proration formula would continue for the field as a unit as if no zones had been prescribed.

LOUISIANA

IN EXTRAORDINARY SESSION, Louisiana Legislature proposed amendment to Section 22, Article 6, of the constitution of the State of Louisiana, exempting from tax motor fuels used in boats, aircraft and farm machinery. The amendment will be submitted to the electors of the state for vote in April.

CALIFORNIA

THE CALIFORNIA RAILROAD COMMISSION and the Department of Natural Resources have been instructed by Governor Olson to make an immediate survey and investigation of alleged gas wastage in the Montebello field of Los Angeles Basin, and it is believed possible that steps will be taken to remedy a situation that has caused 50,000,000 cu. ft. of gas per day to be blown into the air due to inadequate gas pipe-line facilities. The California Railroad Commission has authority to instruct either the Industrial Fuel Co. or Southern California Gas Co. to provide a satisfactory outlet. The waste of gas is due to the fact that the southern California gas companies do not have adequate facilities in the field to take care of so large a gas production. The gas companies are of the opinion that there will not be sufficient natural gas produced in the Montebello field to amortize the necessary line which would cost approximately $250,000, and also because it is possible that the excess production might cease before the line could be laid and put into operation.

The Montebello field is operating under an injunction issued by the Superior Court of Los Angeles County. In order to make the act applicable the court first set the allowable gas production of the field as the capacity of outgoing pipe lines, but since that time there have been so many wells completed that it has been found necessary to increase the allowable production beyond the capacity of the pipe lines. It is this excess gas the Department of Natural Resources and state Railroad Commission will attempt to direct into commercial use.

MISSISSIPPI

THE SENATE COMMITTEE on conservation of natural resources has been announced in Jackson. Sen. B. H. Loving is chairman, Sen. Means Johnson, vice chairman, and committee members include Senators Noel Monaghan, Clavin Dees, H. G. Warren, Howard Jones, Robert E. Hauberg, Rush Knox, C. W. Sullivan, Earl Richardson, and Mack Young.

Three bills pertaining to the oil industry were introduced into the Mississippi House recently. House Bill 169 provides for an amended severance tax on oil of 8 per cent, and House Bill 188 provides for distribution of funds derived from that tax into the following allocations: 10 per cent to the general fund of the state, 10 per cent returned to counties from which the taxes were collected, 40 per cent to be deposited in the state schoolbooks fund to supply free schoolbooks for Mississippi children, and 40 per cent to the state conservation fund. House Bill 186 provides for exemption from taxation of oil in its natural state below the surface of the ground.

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

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Historic

Some aspects of the opposition to the Cole bill for federal control of the oil industry that developed at Washington last week are so unusual they may later prove to be of historic significance.

While the daily press missed the point entirely, the visit of the governors of oil-producing states to the president in protest against the Cole bill has had no parallel in recent years.

There have been plenty of visits to the president by representatives of states seeking various kinds of federal subsidies, or some form of governmental protection in the conduct of business within their borders, but here was a case where they were asking nothing for themselves or the industry which they represented.

Representatives of these oil-producing states said, in effect, they were willing to assume full responsibility for the operations of the producing branch of the industry as they had in the past.

So sure were they of the justice and soundness of their position that they asked and obtained an audience with the chief executive of the Government which is seeking to encroach upon their powers.

Another development of the visit was the reported admission of the president that he had not read this bill which he has been assumed to have sponsored and which all the evidence indicates is the brain-child of that wing of his administration which has had an influential part in shaping the major administrative programs in the past few years.

This situation is an additional commentary upon the confusion that exists in Washington in regard to governmental policies.

Here is a bill that affects directly hundreds of thousands of employes and investors and many millions of consumers, and involves a major change in governmental regulation of private industry and yet it apparently has not been seriously studied by responsible governmental heads.

With no public demand and indifference on the part of consuming states questions naturally arise as to the source of this latest investigation of the oil industry and whether it is not essentially a fishing expedition.

It is entirely possible that the governors of the oil-producing states who joined in voicing opposition to the Cole bill may arouse the chiefs of other states to the increasing danger of federal trespassing upon state powers.

The states have been entirely too willing to shift many of their problems of government to a federal agency. They have been too ready to accept the various doles which the Government has freely offered as a solution of problems which should have been solved within state boundaries.

This has inevitably resulted in the federal Government endeavoring to usurp those functions of government which were delegated to the states by the Constitution. The protection of these constitutionally guaranteed rights rests with the states. The spread of federal bureaucratic control, if not stopped, means the end of self-government within the states.

The oil governors have served their states and the country by presenting in a complete and forceful manner these primary principles of government.

In addition to guarding the interests of the oil industry and its employes, investors and consumers, they, at the same time, rendered a service to the whole nation by making a strong protest against expansion of the rapidly growing Washington bureaucracy and the folly of states which, in return for federal subsidies, surrender their powers that are an essential factor in government as we have known it for more than 150 years.

A.I.M.E. Oil Division Headed by Texan

By H. STANLEY NORMAN

NEW YORK, Feb. 13.—Petroleum engineers from all sections of the continent and several foreign countries assembled in New York this week for the annual meeting of the American Institute of Mining and Metallurgical Engineers.

Technical papers on production engineering, a symposium on domestic and foreign oil fields and a session on economics of the petroleum industry occupied major attention on the Petroleum Division program. Geophysical questions, related more directly than ever before to geology, received wide attention from the petroleum engineers attending the meeting.

Above: Thomas V. Moore, head of production department, Humble Oil & Refining Co., new chairman of the Petroleum Division of the A.I.M.E. Left: E. L. Rawlins, petroleum engineer, United Gas Public Service Co., Houston, and C. H. Keplinger, engineer, production department, Shell Oil Co., Inc., Wichita, Kans., who were elected associate vice chairmen of production engineering; Harry H. Power, department of petroleum engineering, University of Texas, elected member of the executive committee, and C. J. Coberly, president of Kobe, Inc., Huntington Park, Calif., associate chairman

Induction of Thomas V. Moore, head of the production-research department of Humble Oil & Refining Co., Houston, as chairman of the Petroleum Division, succeeding W. H. Geis, geologist, Union Oil Co. of California, at the annual Petroleum Division banquet was to be one of the meeting's high points.

C. J. Coberly, president of Kobe, Inc., was elected associate chairman. C. V. Milliken, Amerada Petroleum Corp., Tulsa, and H. H. Power, department of petroleum engineering, University of Texas, were elected members of the executive committee; C. H. Keplinger of Wichita, Kans., and E. L. Rawlins, petroleum engineer, United Gas Public Service Co. of Houston, Tex., were elected associate vice chairmen of production engineering.

Officers reelected were: B. C. Craft, associate professor of petroleum engineering, Louisiana State University, secretary and treasurer; W. H. Geis, Union Oil Co. of California; E. A. Stephenson, professor of petroleum engineering, University of Kansas, and W. B. Heroy, Pilgrim Exploration Co., Houston, Tex., members of the executive committee; F. B. Plummer, geologist, bureau of economic geology, University of Texas, vice chairman production engineering; Roy E. Collom, vice president, Continental Oil Co., Los Angeles, and F. G. Tickell, professor of petroleum engineering, Stanford University, associate vice chairmen of production engineering; J. Terry Duce, geologist, Texas Co., New York, vice chairman for production; Basil B. Zavoico, Chase National Bank, associate vice chairman for production; D. L. Katz, assistant professor of chemical engineering, University of Michigan, vice chairman for engineering research; Lyon F. Terry, department of petroleum economics, Chase National Bank, New York, vice chairman for economics, and Walter Miller, vice president, Continental Oil Co., Ponca City, Okla., vice chairman for refining engineering.

Herbert Hoover, Jr., president of the United Geophysical Co., delivered the after-dinner talk on "Some Economic Effects of Geophysical Exploration in the Petroleum Industry." Mr. Hoover, earlier in the week, contributed an unscheduled paper at the production-engineering session on spectographic analysis of gases from earth samples, one of the newest tools adapted to exploratory work.

The foreign-production symposium this year lacked the open discussion of developments that has prevailed in the past, because of restrictions imposed by the European war. Some of the remarks were removed from the privileged category by "off-the-record" admonitions from the speakers or the chair.

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Landon Warns Illinois of Federal-Control Danger

SPRINGFIELD, Ill.—Former Gov. Alf M. Landon of Kansas predicted that if Illinois and California continued to stay out of the interstate oil compact, federal control of the oil industry was "inevitable," adding that "the chief argument for federal control is that Illinois and California haven't joined the compact.

"Those who are unhappy now about the prospect of state control of Illinois' production will be more unhappy if there is federal control. State-control authorities get a first-hand view of the problems. Federal control will be run from Washington, studied from maps."

Blausteins Ask Accounting By Pan American

NEW YORK, Feb. 13.—Briefs were in the hands of New York Supreme Court Justice Samuel I. Rosenman, covering a plea by the estate of Louis Blaustein demanding an accounting of $50,000,000 by Pan American Petroleum & Transport Co. Defendants, including Standard Oil Co. of Indiana and Standard Oil Co. of New Jersey, entered a plea for dismissal, decision on which was reserved by the court. The accounting suit is being brought by the estate of Louis Blaustein, late president of Pan American, and his son, Jacob Blaustein, former vice president.

The trial is largely based on the allegation that Standard of Indiana and Standard of New Jersey acted to prevent development of Pan American into a fully integrated unit.

Burford, Weiss and Leche Attack Connally Law

NEW ORLEANS, La., Feb. 13.—The constitutionality of the Connally Act was attacked today in demurrers by former Gov. Richard W. Leche, Seymour Weiss and Freeman W. Burford, indicted by a federal grand jury last summer on charges of conspiracy to violate the act in alleged running of 480,000 bbl. of hot oil. The defendants also claimed expiration of the statute of limitations.

A statement was filed from Judge T. W. Davidson's northern Texas federal District Court which last August refused to return Mr. Burford to Louisiana for arraignment. The statement said the court had found that Mr. Burford did not commit the offense charged, and that the evidence completely "destroys the presumption of probable cause."

A demurrer by East Texas Refining Co. claimed the indictment failed to state sufficient grounds of an offense against federal law, and that every count was vague and indefinite.

Mr. Leche contended there was no offense against the federal Government, that with repeal of the Act 13 of the 1933 legislature there ceased to be a definition of contraband oil. Act 13 was repealed by Act 225 of 1936.

Storms Field Is Extended in Southeastern Illinois

By HARRY F. SIMONS

WHILE the Salem field has stolen the show in Illinois, activity in the southeastern part of the basin has resulted in the discovery of eight new pools in as many months in White County and all of them are the scene of considerable field work. Most interesting among them is the Storms field, in Sections 14, 15, 23, 26, and 27-6s-8e, which to date has 19 oil completions, 4 gas wells, and 4 dry holes; two of the failures did not test the pay horizon but were abandoned when they ran low on top of the Chester series. Average initial of the oil wells has been 288 bbl. of oil per day and 16,000,000 cu. ft. of gas; gas wells have averaged 7,000,000 cu. ft. per day.

The field was extended a half mile south last week when Ray Johnson's (Ledbetter and others) No. 1 N. Storms, NW SE NE Section 22-6s-9e, was completed for 20,000,000 cu. ft. of gas and an estimated 10 bbl. of oil per hour from the Waltersburg sand at a total depth of 2,264 ft. Nearest oil well to it is in the NE NW SE of Section 23-6s-9e, although there is a gas well in the SE SW SW of Section 23. The new well makes the field 2½ miles long from north to south and over a mile wide from east to west. At the present time there are 24 active operations in the area with some of them in the testing stage.

Production History

Discovery of the field was on June 13 by Eason Oil Co. and Angle's No. 1 Storms heirs, W½ SE SW Section 14-6s-9e, the discovery well producing 12,000,000 cu. ft. of gas and no oil on its initial test. The first oil well was obtained by the same operators when No. 2 Storms, NW NW SE of the same section, flowed 302 bbl. and 6,000,000 cu. ft. of gas in 24 hours. Following this completion, other operators started development of the field but a damper was put on the work late in the fall when it was found that the crude oil from the field had a high salt content. After operators developed a combination chemical and heat treatment for removal of the salt, purchasers began taking the oil although the price is lower than in other basin fields, varying from 80 to 90 cents per barrel. J. Hal Compton and Sohio Corp. are the principal purchasers in the field. Sohio is building a line from the field to its Griffin-Mount Vernon line; Compton ships by tank car. So far no market has been found for the gas production although several towns in the vicinity have expressed interest as the field represents a comparatively large gas reserve.

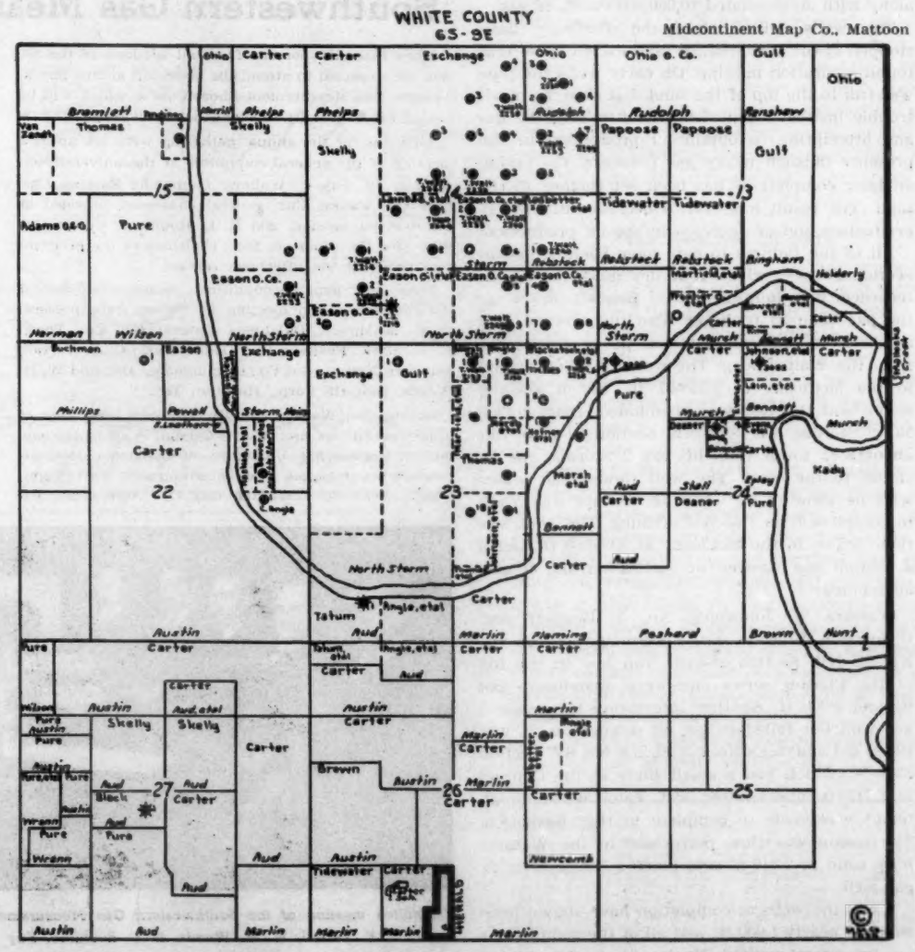
Oil production in the field is from the Waltersburg sand in the upper part of the Chester series at an average depth of 2,247-68 ft.; the gas production lies immediately above the oil. The oil-producing section of the sand averages 20 ft., but varies in thickness and at times part of the sand is replaced by shale. Total thickness of the Waltersburg averages 38 ft. but in some wells it has a total thickness of 70 ft.; the gas occurs in the top 10 to 30 ft. Control of the gas is difficult in most wells as there is no shale between the gas and oil-bearing sections of the formation; in other wells a shale break separates the two and operators have been successful in curtailing the gas production.

The topography in the field is gently rolling and elevation of wells averages 381 ft. Base of the Pennsylvanian is found at an average depth of 2,031 ft. or —1,650 ft. The Menard lime is topped at an average depth of 2,149 ft., or —1,768 ft., and lies immediately above the Waltersburg. It is approximately 81 ft. thick, although it varies slightly throughout the field. The Waltersburg sand is topped at an average depth of 2,230 ft. or —1,849 ft.; the oil pay is found approximately 17 ft. in the sand or at —1,866 ft.

Other Prospective Formations

While the Waltersburg is not the highest member of the Chester, it is well toward the top, and eight other Chester formations that are known to be productive lie below it. In addition there are the lower Mississippian and Devonian formations which are prospective sources of oil. Some of the higher Chester sands have produced large quantities of oil, particularly in Lawrence County. The Buchanan sand, which may be Hardinsburg or Tar Springs, more probably the latter, produced 50,000 bbl. per acre on a lease in Section 17-3n-12w, while Snowden & McSweeney's O'Donell lease, immediately south of this large production, recovered over 30,000 bbl. to the acre. However, recovery from Waltersburg production to date in Illinois has not been large.

The discovery well was drilled on a block of acreage assembled by Angle & Angle of Carmi, Ill. Location of the well was on an anticline indicated by surface geology and coal test holes. Eason Oil Co. became interested in the test, and while drilling was in progress had the area seismographed with the previous estimate being confirmed. After the discovery well disclosed the possibilities of the area, trading was quite brisk, and several large companies purchased acreage. Principal owners of acreage in the field at the



Map of Storms field in Township 6s-9e, White County, Illinois, showing completions and drilling wells

present time are Eason Oil Co., the Exchange Oil Co. (Sinclair), Skelly, and Gulf Refining Co. There are also numerous independents with 20 and 40-acre leases.

The Waltersburg sand was not the goal of the discovery well as it was drilled originally to the St. Louis limestone and bottomed at 3,079 ft. The Waltersburg was topped at 2,215 ft., Tar Springs 2,305 ft., Hardinsburg 2,460 ft., Cypress sand 2,635 ft., Paint Creek stray 2,747 ft., Benoist 2,919 ft., Ste. Genevieve 2,985 ft., Rosiclare 2,910 ft., Fredonia 2,933 ft., McClosky pay 2,984-88 ft., and St. Louis lime at 3,079 ft. Cores taken in the Cypress showed some oil and saturation was found in both Tar Springs and Waltersburg. Casing was run to 2,968 ft., but the string also included removable sections at 2,210 ft. and 2,668-80 ft. When the plug was drilled to test the McClosky it was found that water was coming from a formation above the McClosky and casing was recemented. The well could not be completed satisfactorily and several attempts were made to plug back to 2,888 ft. and recomplete when gas broke in through the removable casing and the well flowed 15,000,000 cu. ft. a day with some salt water.

A squeeze job was run at 2,219 ft. and 320 sacks used to seal off the formation with the retainer set at 2,164 ft. The cement was then drilled with the bit on the tubing and the well flowed 3,000,000 cu. ft. from the Waltersburg with the bit still in the hole. After the bit was removed the well made 12,000,000 cu. ft. of gas.

On the second well, Eason & Angle's No. 2 Storms, ½ mile northeast of the discovery, 7-in. casing was run to a total depth of 2,240 ft. after topping the Waltersburg at 2,237 ft. The well flowed 24 bbl. in the third hour of its initial test along with an estimated 10,000,000 cu. ft. of gas.

The wells drilled since the discovery have stopped at the Waltersburg sand except those that found saturation missing. On early wells the pipe was run to the top of the sand, but since so much trouble has been experienced controlling the gas and attempting to obtain oil production in the presence of such heavy gas pressure, the casing on later completions has been set further in the sand. The result has been a decrease in the gas production and an increase in the oil production.

All of the failures to date have been drilled in Section 24-6s-9e, where four dry holes have been recorded. Roy Johnson's No. 1 Bennett picked up the pay sand 20 ft. lower than the average well and showed some oil, but was never a producer from the Waltersburg. The well was then drilled to the McClosky at 3,058-67 ft., but it showed water and the test was abandoned. Blackstock's No. 3 Storms, NW NW NW Section 24-6s-9e, ran about 8 ft. lower than his No. 2 Storms, one location to the west. The well flowed salt water with no show of oil when an attempt was made to complete it in the Waltersburg. The well was then drilled to the McClosky at 3,040-60 ft., but a drill-stem test showed no saturation and it was abandoned.

O'Meara & Johnson's No. 1 Bennett and O'Meara & Wilson's No. 1 Bennett, both in the NE SE NW Section 24-6s-9e, ran low on the top of the Chester series and were abandoned just beyond 2,000 ft. Another interesting test made a gas well but failed to get oil production. It was Bates & Lichlyter's No. 1 Aud, NE NE SW Section 27-6s-9e, which had a small show in the Cypress at 2,713 ft. and showed salt water when an attempt was made to complete in that formation. The casing was then perforated in the Waltersburg sand at 2,340 ft. and made a 3,000,000-cu. ft. gas well.

All of the wells at completion have shown pressures of nearly 1,000 lb. and all of the completions are by rotary method. No trouble is experienced in getting the wells to flow. Casing pressure while flowing is approximately 900 lb. per sq. in., while the tubing pressure is 170 lb. per sq. in. Two separators are used to handle the gas. Gravity of the oil varies from 29° to 30°. The salt content varies in different wells from a few pounds per 1,000 bbl. of oil to 2,300 lb. per 1,000 bbl. The salt cannot be separated by simple heating and washing but must be treated with chemicals.

Practice has been to drill about 150 ft. of surface hole and run 10¾-in. casing and cement it to the surface. It then takes about 10 days to drill the 8¾-in. hole to the casing point, from 6 to 10 bits being required to make this amount of hole. There is a porous streak at about 1,500 ft., which causes loss of circulation and many of the wells have used 200 sacks of artificial mud getting through it. Mud is kept at about 35 viscosity and 10.8 lb. per gallon. Plenty of water and gas are available for drilling.

Casing used in the wells is 20-lb.-per foot 7-in. o.d. pipe and tubing is 6.5 lb. per foot, 2½-in. upset. After landing and cementing the casing, the plug is drilled and the drill pipe is replaced by tubing and the wells washed in with water.

The wells in the field pay out in less than 6 months if they are produced at anywhere near capacity. The cost of drilling, completing, and equipping a well ranges from $13,000 to $15,500, depending on how much tankage is provided for each well. If a central tank battery is used, the investment can be reduced. Following is a tabulation of costs for a well in the field:

Surface casing, 10¾-in.	$325
Cement	175
Total	$500
Casing, 7-in., 20-lb.	$2,200
Guide shoe	100
150 sacks cement	425
Drilling contract	6,900
Total	$9,625
Tubing, 2½-in. upset, 6.5-lb.	$876
Well-head connections	750
Tank battery and separators	1,875
Fire wall	50
Filling in pits	100
Miscellaneous production costs	*1,257
Camp and trucking	450
Total	$5,358
Grand total	$15,483

*Includes the cost of production of 7,000 bbl.

While the production at present (approximately 2,000 bbl. per day) is all from the Waltersburg sand, the fact that the discovery well was attempting to complete in the McClosky is encouraging for those anticipating deeper production. Five miles northwest of the field production has been obtained in both the McClosky and Tar Springs in the Stokes field. The Tar Springs possibilities have not been fully tested in the Storms field as yet. The indications of production in the Cypress are not so good since the completion of the Bates & Lichlyter's No. 1 Aud, although this well was not located so favorably structurally. Cypress production may still be obtained in the field. Production in the Hardinsburg sand was found recently in J. W. Carter and others' No. 1 Johnson, SW NW NE Section 25-6s-8e. The oil was reported to be 38° gravity.

Southwestern Gas Measurement Short Course

More than 600 persons from all sections of the nation are expected to attend the sixteenth annual Southwestern Gas Measurement Short Course which will be held at the University of Oklahoma April 16, 17, and 18.

All plans for the annual gathering were set up at a meeting of the general committee at the university on January 19. Fay C. Walters, Panhandle Eastern Pipe Line Co., Kansas City, general chairman, presided at the morning session, and R. L. Rountree, United Gas Pipe Line Co., Houston, Tex., chairman of the program committee, at the afternoon session.

Four new general-committee members, elected at the previous group meeting in Dallas, were present: E. C. McAninch, Oklahoma Natural Gas Co., Tulsa; E. L. Stark, Foxboro Co., Dallas, Tex.; C. E. Terrell, Southern Natural Gas Co., Birmingham, Ala., and W. H. Woods, Gulf Oil Corp., Houston, Tex.

Besides Mr. Walters and Mr. Rountree, chairmen of other committees are: W. H. Carson, dean of the college of engineering, University of Oklahoma, local arrangements, banquet, and entertainment; Earl Kightlinger, Arkansas Louisiana Gas Co., Shreveport, exhibits; C. A. Gibson, Cities Service Gas Co., Bartlesville, Okla., publications; R. M. Scofield, Lone Star Gas Co., Dallas, study of practical methods, and Miss Kate A. Niblack, Oklahoma Utilities Association, Oklahoma City, registration and publicity.

Other members of the general committee are: William F. Lowe, Natural Gasoline Association of America, Tulsa; G. W. McCullough, Phillips Petroleum Co., Bartlesville; W. R. McLaughlin, Pittsburgh Equitable Meter Co., Dallas; E. M. Myers, Corporation Commission of Oklahoma; J. H. Page, Kansas Corporation Commission; E. H. Poe, Natural Gas Section, American Gas Association, New York; J. H. Satterwhite, American Meter Co., Inc., Tulsa; Max K. Watson, Canadian River Gas Co., Amarillo, and F. M. Blair, Railroad Commission of Texas.

Mr. Rountree will present the program for final approval and other business matters will be transacted at the next meeting of the general committee in Oklahoma City, March 4.

To stimulate interest in the short course, prizes are awarded those who write the best papers on what they learned during the 2-day meeting.

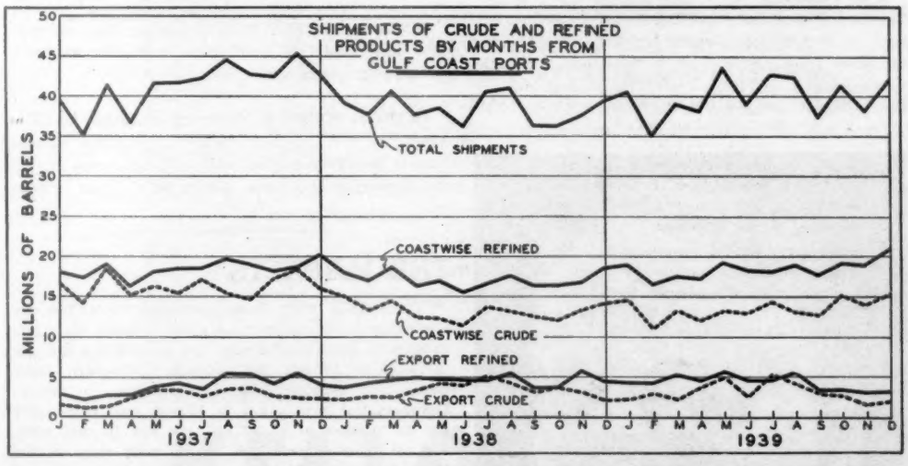
Committee meeting of the Southwestern Gas Measurement Short Course in Norman, Okla.: E. C. McAninch, E. L. Stark, C. E. Terrell, W. H. Woods, R. L. Rountree, Fay C. Walters, Miss Kate A. Niblack, W. R. McLaughlin, Earl Kightlinger, and W. H. Carson

Although export shipments from Gulf Coast ports declined sharply during 1939, coastwise movement increased more than enough to offset the loss. Total shipments amounted to nearly a half billion barrels

Gulf Coast Export Shipments Reach 3-Year Low

By NEIL WILLIAMS

HOUSTON, Tex., Feb. 12.—Curtailed buying of oil in this country by warring countries of Europe has reduced tanker export shipments from the Gulf Coast to the lowest level since April 1937, according to coastal terminal reports just compiled for the past year. Monthly export movement of oil from these ports climbed to new peaks during the year, which peaks were reached prior to the outbreak of the war; but within the last several months shipments have declined sharply.



TANKER SHIPMENTS FROM GULF COAST PORTS BY MONTHS, 1939

Month—	Coastwise Crude	Coastwise Refined products	Export Crude	Export Refined products	Total
January	14,858,516	19,174,707	2,444,814	4,378,748	40,856,785
February	11,233,483	16,758,256	3,050,330	4,301,868	35,343,937
March	13,461,869	17,730,829	2,487,956	5,439,019	39,119,673
April	12,114,701	17,374,392	3,985,841	4,768,520	38,243,454
May	13,398,017	19,333,615	5,068,194	5,822,987	43,622,813
June	13,054,146	18,379,257	2,794,459	4,823,486	39,051,348
July	14,417,358	18,249,271	5,439,776	4,810,633	42,917,038
August	13,260,358	19,064,459	4,385,189	5,847,873	42,557,879
September	12,960,754	17,947,504	3,093,743	3,690,209	37,692,210
October	15,340,500	19,337,895	2,986,502	3,769,096	41,433,993
November	14,027,850	19,188,611	1,882,820	3,220,650	38,319,931
December	15,437,992	20,965,211	2,179,577	3,465,716	42,048,496
Total	163,565,544	223,504,007	39,799,201	54,338,805	481,207,557

Exports increased slightly during December as compared with the November low for the year, but during that month the movement still was only slightly over half the volume of business during the peak months. Although reports for January are not yet available, it has been indicated shipments for that month showed little change over those of December.

With a continuation of the rate of export movement that existed before the outbreak of the war, total export shipments for the year promised to break all records. However, as a result of the sharp reductions in exports since then, the year ended with these shipments totaling 4,071,367 bbl. less than the volume for 1938, the peak year.

The past year was the first in which export shipments did not show an increase over the preceding year. The general trend has constantly been upward until this year. However, shipments for 1939 were still substantially above those of 1937.

Peak Reached in May

Exports reached their peak in May when 10,891,181 bbl. of oil, including crude and refined products, were lifted out of Gulf Coast ports for foreign destination. These shipments fell off slightly during June, but during July and August again totaled more than 10,000,000 bbl. monthly. During September, with the start of the war, exports dropped to 6,783,952 bbl., and by November they were down to 5,103,470 bbl.

August export shipments were at peak levels despite the production of Texas, Louisiana, and the Mid-Continent was shut down for 15 days. Although domestic refiners were pressed to obtain adequate crude supplies for their own operating requirements, they continued export movements at high levels. Part of the sharp drop in shipments during September may have been a reflection of this shutdown, although it is known export demand slackened materially during that month and tanker transportation to belligerent countries became disrupted.

Of the total export movement, shipments of

(Continued on Page 107)

TANKER SHIPMENTS FROM GULF COAST PORTS BY YEARS FOR PAST 5 YEARS

Year	Coastwise (bbl.) Crude	Coastwise (bbl.) Refined	Coastwise (bbl.) Total	Export (bbl.) Crude	Export (bbl.) Refined	Export (bbl.) Total	Total crude (bbl.)	Total refined (bbl.)	Total shipm'ts (bbl.)
1939	163,565,544	223,504,007	387,069,551	39,799,201	54,338,805	94,138,006	203,364,745	277,842,812	481,207,557
1938	160,090,801	205,860,624	365,951,425	42,102,912	56,106,461	98,209,373	202,193,713	261,967,085	464,160,798
1937	196,010,142	224,922,917	420,933,059	31,478,619	47,550,213	79,028,832	227,488,761	272,473,130	499,961,891
1936	160,827,697	210,560,642	371,388,339	16,884,257	28,870,220	45,754,477	177,711,954	239,430,862	417,142,816
1935	142,869,922	165,888,671	308,758,593	16,385,396	26,660,657	43,046,053	159,255,318	192,549,328	351,804,646

Shell Advances Fuel-Oil Prices Despite California Crude Cut

LOS ANGELES, Calif., Feb. 13.—The crude-oil price cut posted by Standard Oil Co., effective February 1, had not been met by other posting majors up to Tuesday noon, February 13. Shell Oil Co., Inc., increased fuel-oil prices 15 cents per barrel on February 9 at Los Angeles Harbor. Latest indications point to the probability that other major buyers will meet Standard's cut within the next few days although no definite announcement of this intention has been made.

R. E. Collom, vice president of Continental Oil Co., says "the recent cut in crude-oil prices places a still heavier burden on the producer whose cooperation in the voluntary curtailment program has made possible the relative stability enjoyed by the oil industry during the past 2 years." Mr. Collom is president of both the California Oil and Gas Association and the Kettleman North Dome Association.

Speaking for himself, Mr. Collom said that "admittedly the fuel-oil market and gasoline market have weakened since the first of the year, but for one purchasing company, or all of them as a group, to transfer that weakness to the producer who has fully cooperated in the industry's voluntary conservation program at a direct cost of 35 per cent of his income, seems shortsighted and very apt to prove far more costly in the long run than to bear the cost of minor market weaknesses until they can be rectified.

"Our fears are that, if marketing weaknesses are passed on to the producer, he will refuse to curtail his production, prices will continue to weaken, and the state itself will face chaos. The price cut appears to be particularly ill-timed, in view of the fact that cooperation in the voluntary curtailment program has been exceptionally good during recent months, and because of further offers of cooperation, made by representatives of independent producers, when the weakness in the market first became apparent at the beginning of the year."

Rail and Utilities Group Oppose the Cole Bill

A. S. J. Shaw, member of the Oklahoma Corporation Commission, reports that the executive committee of the National Association of Railroad and Utilities Commissioners, has directed its general counsel in Washington to use his full efforts to defeat the Cole oil-control bill. The committee's action was on the motion of Mr. Shaw and Lon A. Smith, chairman of the Texas Railroad Commission.

Production Committee Named for Expo

Members of the production committee which will assist in building attendance among production men of the oil industry at the 1940 International Petroleum Exposition at Tulsa, May 18 to 25, are announced by H. M. Stalcup, vice president in charge of production at Skelly Oil Co., Tulsa., chairman of the committee.

The committee includes: J. G. Dyer, Continental Oil Co., Ponca City; A. E. Hoenig, Indian Territory Illuminating Oil Co.; A. W. Ambrose, Cities Service Oil Co., and C. P. Dimit, Phillips Petroleum Co., all of Bartlesville; J. Steve Anderson, Anderson-Prichard Oil Co., Oklahoma City; J. M. Hewgley, Transwestern Oil Corp., San Antonio; Lloyd Noble, Samedan Oil Co., and H. B. Fell, Simpson-Fell Oil Co., both of Ardmore, Okla.; E. J. Dunigan, Jr., Mordyan Petroleum Co., Pampa, Tex.; J. S. Bridwell, Bridwell Oil Co.; Charles P. McGaha, Fain-McGaha Oil Corp., and W. B. Hamilton, Hamilton Petroleum Co., all of Wichita Falls, Tex.; M. J. McLaughlin, Magnolia Petroleum Corp.; Jake L. Hamon, Cox & Hamon, and Clyde Alexander, all of Dallas; R. L. Wheelock, Wheelock & Collins, Corsicana, Tex.; J. R. Penn, Texas Pacific Coal & Oil Co.; W. A. Moncrief, Showers & Moncrief; L. E. Barrows, Texas Co.; J. D. Collett, O'Keefe & Collett Corp., and A. H. Rowan, Rowan & Nichols Oil Co., all of Fort Worth; J. R. Williams, Standard Oil Co. of Louisiana, Shreveport; Murray C. Sells, Sells Petroleum, Inc., Longview, Tex.; J. E. Howell, Lion Oil Refining Co., El Dorado, Ark.; Ralph Pryor, Pryor & Lockhart; E. C. Moriarty, Derby Oil Co.; Joe A. Aylward, Aylward Production Co., and J. A. Vickers, Vickers Petroleum Co., all of Wichita, Kans.; Van S. Welch, Flynn, Welch & Yates, Artesia, N. M.; Harry Leonard, Harry Leonard, Inc., Roswell, N. M.; R. A. Bloomfield, Barnsdall Oil Co., Los Angeles; H. D. Atha, Gordon Oil Co., Mount Pleasant, Mich.; and Ralph T. Zook, Sloan & Zook Co., Bradford.

Members on the committee from Tulsa include: N. T. Gilbert, Mid-States Oil Corp.; A. M. Blow, Amerada Petroleum Corp.; D. R. Snow, Barnsdall Oil Co.; W. K. Whiteford, British American Oil Producing Co.; J. J. Conry, Carter Oil Co.; S. G. Sanderson, Gulf Oil Corp.; Harold N. Pardee, Texas Co.; M. E. Wagner, Ohio Oil Co.; H. L. Phillips, Sinclair Prairie Oil Co.; C. S. Sanders, Stanolind Oil & Gas Co.; R. B. Pringle, Tide Water Oil Co.; and R. B. Roark, Shell Oil Co., Inc.

DEATHS

L. B. DENNING, 62, founder and president of Lone Star Gas Co., in 1909, died February 6 in Dallas, Tex. Born on a farm near Greensburg, Ind., in 1877, after his early schooling he went to Cincinnati, where he was employed as lumber clerk. He studied law and was admitted to the bar in Columbus, Ohio, in 1899,

practicing in a small town in southern Ohio, and becoming city solicitor. In 1902 he became attorney for a gas company. In 1910 he was made general counsel for Ohio Fuel Supply Co. and in 1918 vice president in charge of distribution. Later he became vice president of Fayette County Gas Co. and secretary and treasurer of Northwestern Ohio Natural Gas Co. He also was an official of Tropical Oil Co. and Penn-Mex Fuel Co. In 1921 he was elevated to the presidency of the Natural Gas Association of America. He had been a member of the national committee on gas conservation during the administration of President Wilson. In 1909 he and E. R. Brown organized the Lone Star Gas Co. The first line was 135 miles long. The system grew to 4,000 miles and serves about 300,000 customers in 300 Texas and Oklahoma towns and cities.

S. B. FAULKNER, 48, Electra, Tex., oil producer, died of a heart attack at his home in Electra recently. He was a native of Pennsylvania and had come to the Mid-Continent oil fields shortly after returning from the World War.

F. G. FEHL, 64, oil operator of Breckenridge, Tex., died at his home in Breckenridge recently from injuries received at one of his wells. He was a native of Evans City, Pa.

WILLIAM A. TRUBEE, 73, who retired in 1938 as vice president of Galena Signal Oil Co., died February 7 at his home in Pelham, N. Y. He had been associated with Galena Signal for 38 years.

ROBERT H. BECKER, retired auditor for Socony-Vacuum Oil Co., Inc., died in New York, February 8, of a heart attack. He joined Standard Oil Co. of New York when a young man and spent 17 years in the Orient and Europe. In all he served the company 27 years before his retirement.

CLIFFORD SPURRIER LEE, a highway economist who had served with the American Petroleum Industries Committee for 8 years, died February 8 in a New York hospital. He also served as public relations manager for the Asphalt Institute.

JAMES A. HARPER, 65, San Antonio, Tex., oil man, died last week. He was active in drilling in South Texas, particularly Lytton Springs.

FRANK M. JOHNSON, 53, tax commissioner for Oklahoma Pipe Line Co., died February 11 in Tulsa. He was born in New Brighton, Pa., moving to Oklahoma in 1921 and settling at Muskogee. He moved to Tulsa 5 years ago.

THE MARKETS*

CRUDE OIL: With Texas producing 118,945 bbl. per day in excess of the previous week, average daily production in the United States rose to 3,682,914 bbl., an increase of 170,961 bbl. Illinois, California, Oklahoma also reported material increases in output. Devonian-lime production in Illinois was responsible for an increase of 13,717 bbl. per day in that state, and no letup is promised, as 25 wells were in the Devonian pay in Salem pool and ready for completion.

REFINERY: Gasoline particularly weak in Gulf Coast and interior territory, but holding fairly steady on North Atlantic seaboard. Domestic heating oils tight in Gulf Coast and eastern areas and steady in Mid-Continent. Heavy industrial oils firm. Lubricating oils maintaining most of their strength in Mid-Continent, but getting softer in East. California market generally weak.

TANK WAGON AND POSTED DEALER: Tank-wagon and dealer prices of gasoline reduced 2.5 cents in Albuquerque and 1.5 cents in Denver by Continental Oil Co. Socony-Vacuum made local adjustments in kerosene prices at several points. Other changes unimportant.

FINANCIAL: Oil shares participated in the increased activity and modest improvement displayed by the general market. Most of them closed near their highs for the week. Average of 30 representative stocks for week ended February 10: High, 26.54; low, 25.70; close, 26.27. Week ended February 3: High, 26.23; low, 25.55; close, 25.87.

*Detailed information in market section.

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Refinery Expansion

Two-Million-Dollar Refinery To Be Built Near St. Louis

A partnership of three men, all of whom are well known in the business world, has formed the Wood River Oil & Refining Co. and early in March will start the construction of a 7,500-bbl. refinery at Wood River, Ill., across the Mississippi River from St. Louis, Mo. These men, I. A. O'Shaughnessy of St. Paul, Minn., Fred Koch of Wichita, Kans., and O. H. Ingram of Minneapolis, Minn., have arranged all matters regarding the formation of the new company and all engineering, Mr. O'Shaughnessy being well known to the oil fraternity as president of the Globe Oil & Refining Co., Mr. Koch as partner in the firm of Winkler-Koch Engineering Co., and Mr. Ingram has been identified with business properties in the East St. Louis area.

The new plant will include cracking facilities so that a maximum recovery of high-octane gasoline may be realized. Crude will be transported to the plant from Illinois fields by pipe line and rail. For the present the company has made no provisions for the construction of its own pipe line. Shipments of the finished products will be made by boat, rail and tank, the location having been chosen as an especially advantageous one.

At present, plans call for the expenditure of about $1,500,000 for refinery equipment and an additional $500,000 will be utilized for possible expansion or modification of the present plans in order to take full advantage of the changes in marketing practices.

Offices of the new company will be located at Hartford, Ill. Construction will be completed by late summer.

Petroleum Distillation Corp. Holds Technical Meeting

PHILADELPHIA, Pa., Feb. 12.—The Petroleum Distillation Corp. sponsored earlier this month a 2-day technical meeting attended by 16 representatives of the technical staffs of its licensees and owner companies. The meeting was held in the offices of the Standard Oil Development Co. at New York City.

The purpose of the meeting was to discuss technical problems relating to fractional distillation of petroleum and its products, and to exchange information and experience in this field. To this end, seven technical papers were presented and thoroughly discussed. In addition, current problems relating to fractional distillation and proposed solutions were presented in general round-table discussion. Other meetings are planned for the future to take further mutual advantage of the wide scope of available experience and data.

More to Be Heard Regarding Oklahoma Rail Tariffs

OKLAHOMA CITY, Okla., Feb. 12. — The Oklahoma Corporation Commission ordered this week an investigation of rates and regulations governing bulk transportation within Oklahoma of refined petroleum products. The hearing, of which notice was given 25 railroads and 52 motor carriers, will open at 10 a.m. February 23 at the Skirvin Hotel here.

The commission said the rate situation is in a "chaotic condition" and there was confusion among the carriers and the trade.

The order stated that the Interstate Commerce Commission had instituted a survey of charges and rules on the movement of refined products between Oklahoma and Kansas and between portions of Missouri and Kansas.

Other states may open hearings similar to Oklahoma's, it was added. Such a hearing will start in Topeka, Kans., February 19 and carriers affected by the Oklahoma order will be permitted to introduce testimony from that hearing into the proceedings here.

Natural Gas

Pacific Coast Association Technical Chairmen

The Pacific Coast Gas Association announces selection of the following committee chairmen in the technical section for 1940: Production committee—M. L. Fort, Los Angeles; manufactured gas—G. R. Horning, Seattle Gas Co.; natural gas—R. M. Bauer, Southern California Gas Co.; distribution committee—C. P. de Jonge, San Diego; meters and regulators—W. L. Kindred, Southern Counties Gas Co.; customers' service costs—Lee Holtz, Southern California Gas Co.; transmission committee—Grove Lawrence, Taft; compressor stations—J. H. N. Ellis, Industrial Fuel Supply Co.; utilization committee—J. C. Mueller; air conditioning—Art Hess, English & Lauer, Inc.

Cooper Acquires Lone Star Holdings in Page Field

SAN ANGELO, Tex.—Cooper Gas Co. of this city has purchased the holdings of Lone Star Gasoline Co. in the Page field of Schleicher County, it was announced here by John M. Cooper, chairman of the board of the former company. Oil and gas rights or gas rights on leases approximating 1,000 acres were transferred in the deal, increasing Cooper's holdings to about 6,000 acres in the block.

The companies also signed a contract under which Lone Star Gasoline Co. will lay an 8-in. welded line from the Page field to San Angelo, about 45 airline miles, for movement of gas to fulfill Cooper's contract to supply the fuel requirements of West Texas Utilities Co. in San Angelo. The contract provides that the gas line must be completed by January 6, 1941, providing ample time before Cooper Gas Co.'s contract with the utility company becomes effective on May 6, 1941. One oil producer and one gas well were involved in the transaction, the oil well being completed in June 1939 to open first production in the area. Cooper originally had two gas wells with potentials totaling about 40,000,000 cu. ft. daily, and now is drilling two other tests.

D. A. Hulcy New President Of Lone Star Gas Corp.

D. A. Hulcy, executive vice president of Lone Star Gas Corp., has been elected by the board of directors as president, succeeding L. B. Denning who died February 6. Elmer F. Schmidt, operating manager, was elected a vice president.

Natural Gas Convention At Houston, May 6-10

The Natural Gas Section of the American Gas Association will hold its thirty-fifth annual meeting in Houston, Tex., May 6 to 10, at the Rice Hotel. At the same time and place the seventeenth annual distribution conference of the American Gas Association will be held.

Natural Gasoline

Hunt Awards Gas-Recycling-Plant Contract for Long Lake

FORT WORTH, Tex.—Contract for the construction of Hunt Oil Co.'s recycling plant in the Long Lake field of Anderson County, Texas, was awarded last week to Hudson Engineering Co. of Houston, Tex. The plant will be of about 45,000,000-cu.-ft.-daily gas capacity with a total of 1,300-hp. compressor capacity. Site of the plant has not been definitely selected; it is tentatively located near the Byrd-Frost, Inc., recycling plant in the center of the field. The Hunt plant will be the fourth plant for the field, Tide Water Associated Oil Co. recently having completed its new unit.

Another Recyling Plant in Cayuga Field of Texas

HOUSTON, Tex., Feb. 12. — Materials are being moved in for construction of a third gas-recycling plant for the Cayuga field, to be constructed for the Roeser & Pendleton, Inc., firm on the Virginia Wills Bowyer lease, Everett Ritter Survey, in the extreme northwest corner of Anderson County. Contract for general construction of the plant was let to a Denver concern, officials of which are establishing residences here during construction of the unit.

The plant will have a capacity of 10,000,000 cu. ft. of gas daily, out of which condensate will be removed through a high-pressure and low-temperature process Residue gas will be returned to the producing horizon through an intake well.

The proposed plant will be the third for the Cayuga field. The Tide Water and Seaboard partnership is now constructing its second plant on the N. N. Wills tract. The plant will be completed within a few weeks. The partnership's first unit, on the Joe Campbell lease, has been in operation for about 2 years and was the first recycling plant in the East Central Texas area.

California Natural-Gasoline Output Increased

LOS ANGELES, Calif.—The production of natural gasoline in California increased in December according to a report of the Bureau of Mines. Production was 1,570,056 gal. more than in the preceding month.

NATURAL-GASOLINE PLANT OPERATIONS

San Joaquin Valley—	Gas treated (thou. cu. ft.)	Natural gasoline produced (gal.)
Belridge	4,386,407	2,558,939
Elk Hills	96,597	125,619
Kettleman Hills	8,220,897	11,672,555
Midway-Sunset	976,546	1,902,200
Mountain View	313,731	374,201
Miscellaneous	1,006,276	550,691
Coastal District—		
Elwood	392,951	513,046
Rincon	155,044	216,562
Santa Maria	144,672	521,901
Ventura Avenue	3,811,419	5,589,423
Miscellaneous	505,210	526,160
Los Angeles Basin—		
Brea-Olinda-Coyote	397,924	1,247,072
Dominguez	1,412,463	2,127,754
El Segundo	52,065	143,247
Huntington Beach	825,611	2,761,396
Inglewood	267,741	362,977
Long Beach	2,395,645	7,308,189
Montebello	2,907,767	1,539,482
Richfield	295,556	579,795
Rosecrans	977,134	1,232,046
Santa Fe Springs	1,419,341	4,767,293
Seal Beach	378,714	515,007
Torrance	331,155	966,267
Miscellaneous	1,340,875	2,444,307
Total (all fields)	33,011,741	50,446,129

DISTRIBUTION

	Gal.	Gal.
Stocks beginning of month	3,679,027	
Production during month	50,446,129	
Delivered to refineries		50,216,755
Delivered to jobbers, brokers, or blenders		574,810
Blended at plants for production of motor fuel		124,988
Losses		33,163
Stocks end of month		3,175,440
Total	54,125,156 Gal.	54,125,156 Bbl.
Liquefied petroleum gas production	3,924,578	93,442
Motor fuel produced	5,954	142

DISTRIBUTION OF LIQUEFIED PETROLEUM GASES—DECEMBER 1939

(Thousands of gallons)

Number of producing companies	14	
Stocks beginning of month		1,788
Production during month—		
At natural-gasoline plants	3,925	
At refineries from natural gas	1,297	
At refineries from cracked gas	1,722	
Total production		6,944
Total		8,732
Total demand		6,901
Losses		141
Stocks end of month		1,690
Total		8,732

Pipe-Line Activity

28-Mile Pipe Line to Give Seminole Field Outlet

DALLAS, Tex.—The Seminole field of Gaines County, largest field in West Texas without a pipe-line outlet, will be granted a carrier by April 1. It will be provided by Magnolia Pipe Line Co. with Atlantic Pipe Line Co. joining Magnolia in the construction of the gathering system. The former company will lay a 26-mile 8-in. line from the field station south of the town of Seminole to NW NW Section 17, where a connection will be made with Atlantic's 8-in. line to Midland and the Gulf Coast. The field was discovered in January 1937, but its only outlet has been by tank truck to Humble Oil & Refining Co.'s field station in the Bennett field of Yoakum County.

Atlantic will lay a gravity gathering system in the north end of the field, consisting of 10 miles of 4-in. and 6-in. main lines with 2-in. laterals, with the system making deliveries into the north end of Magnolia's gathering system. In the south half of the field Magnolia will lay approximately 10 miles of 10-in. and 8-in. lines with 2-in. laterals. A field station will be erected 1 mile south of Seminole of sufficient capacity to handle 5,000 bbl. daily.

Consolidated Pipe Line Buys Manley Lines

Consolidated Pipe Line Corp., a new Illinois organization, has purchased the 51 miles of lines and equipment of Manley Pipe Line Co. The Manley company has been purchasing approximately 4,000 bbl. daily of independently produced oil in the Centralia townsite, Salem and Sandoval fields and has gathering lines in those pools which connect to Centralia refineries.

The Consolidated company is headed by J. A. Johnson, president of Canyon Pipe Line Co. It is understood the companies will be combined. Canyon purchases approximately 10,000 bbl. daily in Salem, Barnhill and other Illinois fields.

Stanolind Will Lay 13 Miles in Oklahoma

A combination line consisting of 8½ miles of 6-in. and 4½ miles of 4-in. will be laid by Stanolind Pipe Line Co. to connect the Pauls Valley-Fitts artery with the main trunk line. This construction work will serve active areas in the Byars and Beebe pools.

Sohio Pipe Line Building Flora Booster Station

The Sohio Pipe Line Co. is building a booster station 2 miles northwest of Flora, Ill., on the Kincaid farm, near Route 46. It will have four Caterpillar diesel engines and four pumps, each capable of handling 595 bbl. hourly. A 10,000-bbl. storage tank has been erected, and another 80,000-bbl. tank is to be erected.

The station is one of four to handle production from the Lake Centralia-Salem, Centralia townsite and Wayne and Clay County fields, piped through a 10-in. line.

Stribling Field of Central Texas Gains Pipe Line

WICHITA FALLS, Tex.—First pipe-line outlet for the Stribling field of northwestern Stephens County, opened by Horwitz & Oldom of this city in May 1938, has been announced. A 9-mile 4-in. line will be laid by them from the discovery-well area to Texas Pipe Line Co.'s booster station northwest of Breckenridge. The line company will pay Horwitz & Oldom the posted field price plus a 10-cent gathering charge until the line is amortized. The operators at present have five wells in the field.

Construction Started on New Sinclair K.M.A. Pipe Line

WICHITA FALLS, Tex.—Construction of Sinclair Prairie Pipe Line Co.'s 8-in. carrier from the K.M.A. field of Wichita County to its Hensley station near Jacksboro was started last week. Several miles of the 68-mile line, which loops a 6-in. line laid by the company last summer, has been laid; it is expected to be completed about March 1. O. C. Whitaker, pipe-line contractor of Fort Worth, is laying the line.

Northern Pipe Line to Lay 100-Mile Gas Line

The Wyoming Public Service Commission granted a certificate to the recently organized Northern Pipe Line Co. for construction of a 100-mile line from Casper to the Billy Creek gas field in Johnson County, north of Salt Creek. At Billy Creek it will tie in with the Montana-Dakota Utilities Co.'s line to Sheridan and Buffalo. Northern Pipe Line Co., of which R. H. Nichols, of Casper, is president, was incorporated for $500,000. The Montana-Dakota company is supplying the two towns from Billy Creek, but the gas is being exhausted. The company recently announced higher rates, but these will not go into effect until the line to Casper is completed. The gas will be purchased from Northern Utilities Co., which obtains its supply from Muskrat and Big Sand Draw in Fremont County. Last fall the Montana-Dakota company asked to be relieved of its contract to supply the two towns, but this was denied while it sought another source of supply. It drilled another well on the top of Billy Creek, but it failed to appreciably increase the quantity of gas available. Construction on the new line from Casper to Billy Creek is expected to start in May.

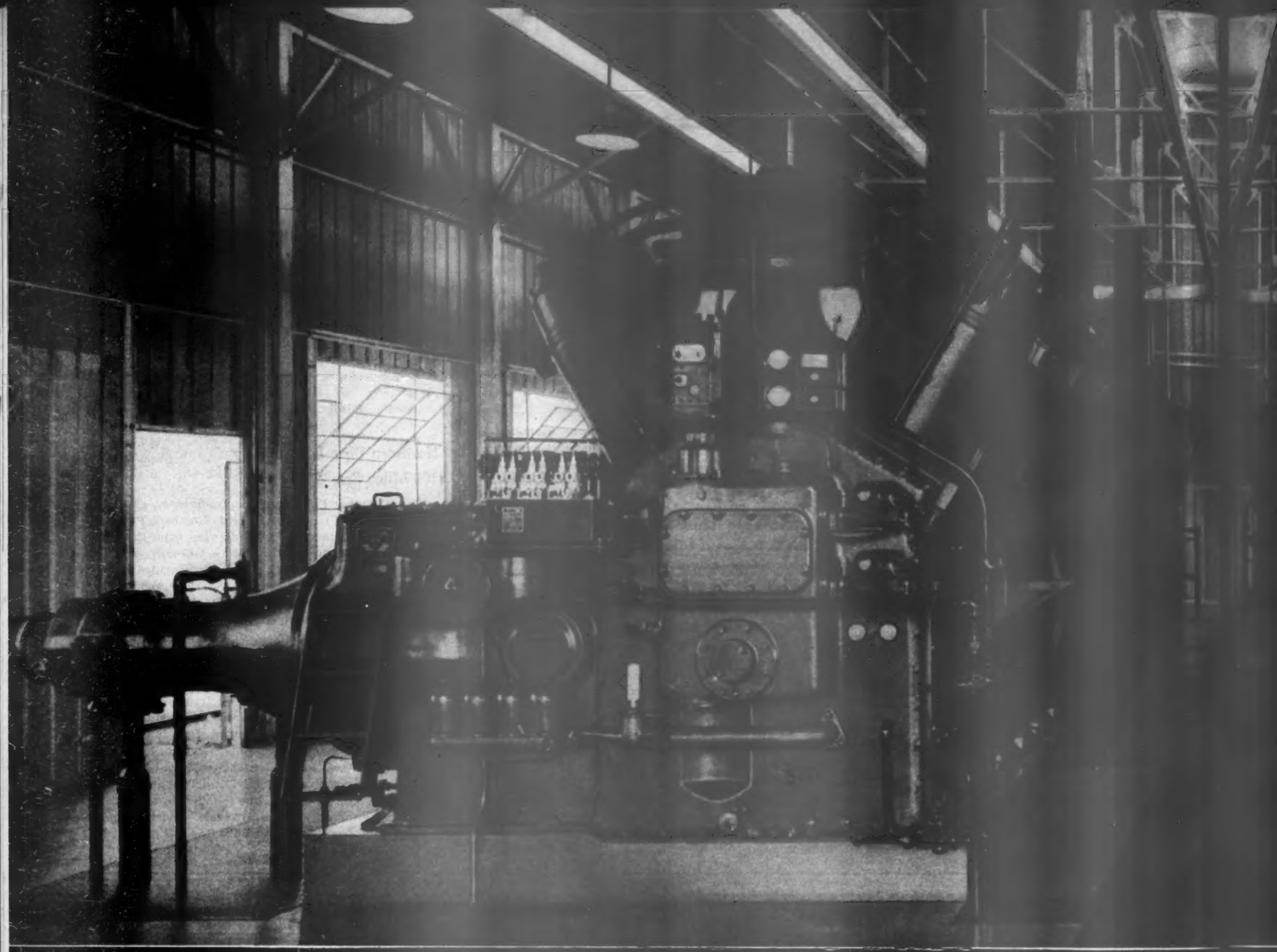
PIPE LINES WILL CARRY ILLINOIS CRUDE TO MARCUS HOOK

Pipe-line route of Illinois crude shipments to Sun Oil Co.'s Marcus Hook, Pa., refinery

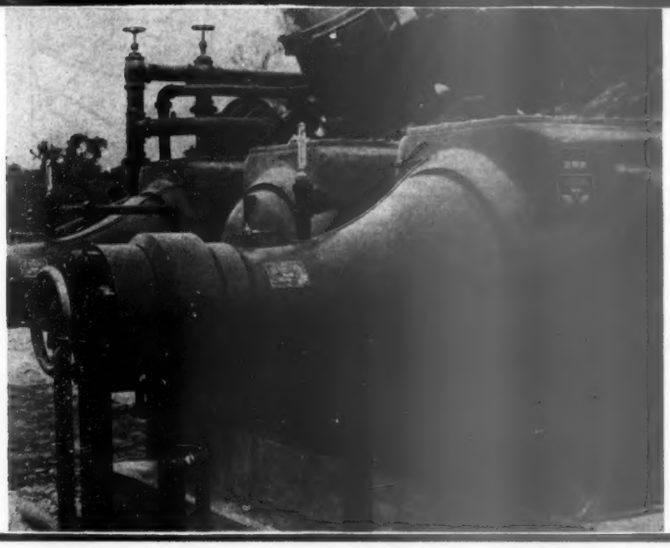
National Transit Co. is to transport Illinois crude eastward for delivery to Sun Oil Co. The quantity is understood to be about 5,000 bbl. per day; shipment is to be made through a series of pipe lines. From connections of Central States Pipe Line Co. in the Salem-Lake Centralia area the oil goes through the Illinois pipe line to the Buckeye pipe line at Lima, Ohio, which carries it to the Pennsylvania State line; from there it is taken by the Northern pipe line to Colegrove, Pa., where it is received by National Transit which moves it southeastward to a junction point near Philadelphia where the Susquehanna pipe line takes it to its final destination at Sun Oil Co.'s Marcus Hook refinery. The refinery, which has a crude-oil capacity of 82,000 bbl. daily, in the past has obtained practically all of its crude oil by water from the Gulf Coast. The capacity of the plant was increased during the past year. The company also operates a 25,000-bbl. refinery at Toledo, Ohio, with Illinois and Michigan crude oil. A subsidiary, Susquehanna Pipe Line Co., operates a gasoline pipe line connecting the Marcus Hook refinery to terminals at Cleveland, Ohio, Newark, N. J., Syracuse, N. Y., and other points as shown on the accompanying map.

According to information given by D. M. Sachs, president of National Transit Co., the particular trunk pipe line to be used in this movement is the one through which Texas crude had been moving westward for several years before it ceased operations in the spring of 1939 by reason of the large production of Illinois oil. This line has a 10,000-bbl.-per-day capacity. Approximately 20,000 bbl. per day of Illinois oil are being shipped through various pipe lines across Pennsylvania for delivery on the Atlantic seaboard. In addition, about 10,000 bbl. are being delivered to Buffalo, N. Y. Not including pipe lines just mentioned, some of the lines engaged in making these shipments are New York Transit, Eureka, Southwest Penn, Southern, and Tuscarora. In addition to the movement of Illinois crude oil by pipe lines, there have been tank-car shipments into western Pennsylvania and West Virginia.

The shipping of Illinois crude eastward represents a third "era" in the history of the pipe lines which traverse Pennsylvania. When originally built, they carried crude oil eastward, a great deal coming from the Mid-Continent. The second era developed when Texas crude was sent westward from the Atlantic seaboard, followed by the western movement of gasoline by pipe line. The third era is the eastern movement of Illinois crude. It is quite possible that some of the gasoline made from this crude is moving back westward through existing gasoline lines.

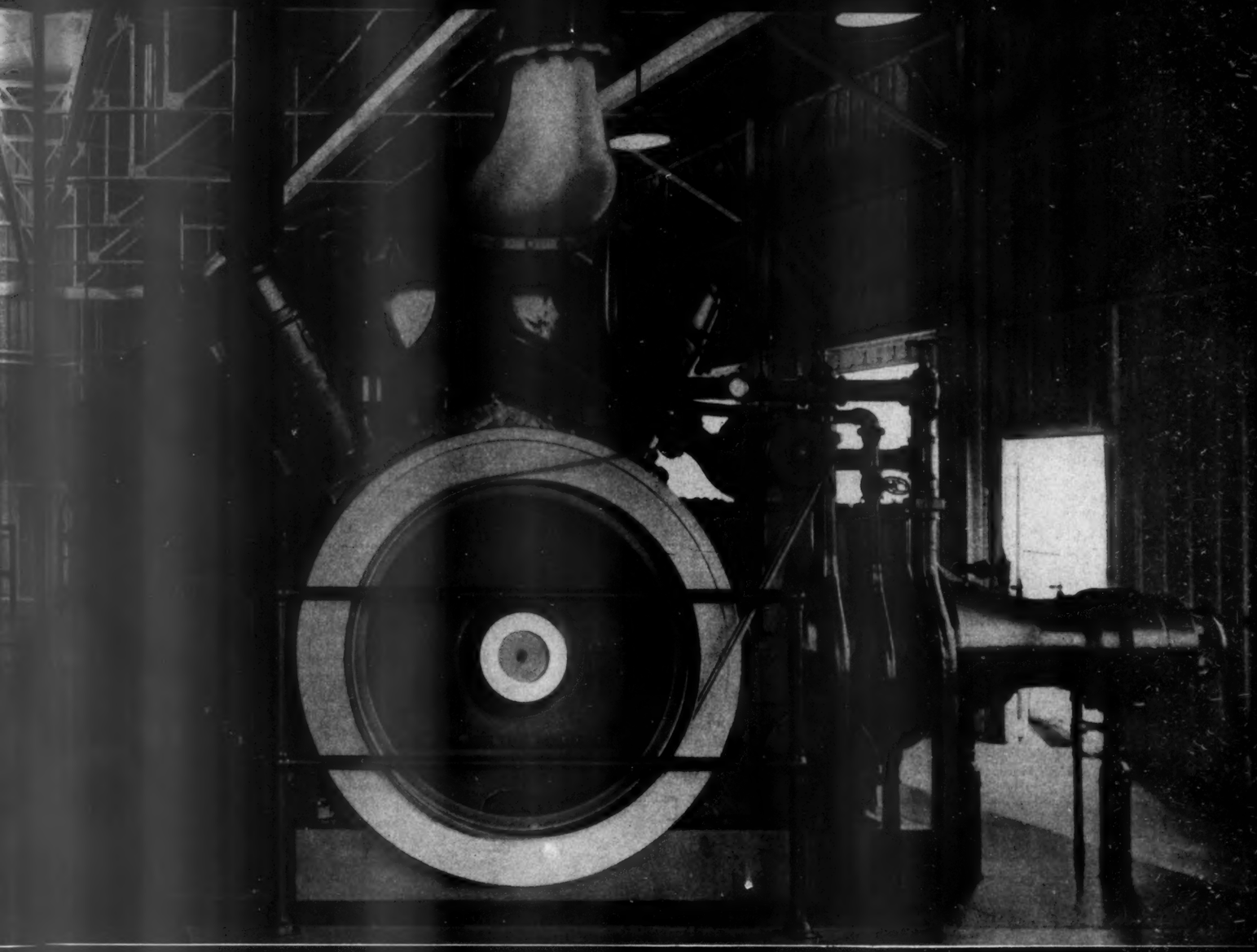


WE'VE LICKED THE TOUGHEST



. . . and Compressor Cylinders are All-Important! Single-acting for extreme simplicity and accessibility. Inlet valve in the piston face, which means that suction pressure backs the piston . . . only the difference between suction and discharge pressures acts on the piston rod. Only suction pressure is on the rod packing at any time. Design permits extreme variations in clearance volumes to meet changing pressure conditions . . . means low valve velocities with low minimum clearances. Inlet and discharge piping greatly simplified. No radial valve pockets means lower stresses on the main barrel forging. ***Write for Bulletin G-MV.***

TYPE GMV ANGLE COMPRESSOR



JOB IN *Texas!*

ABOVE... J. S. Abercrombie and Harrison Oil companies' pressure-maintenance plant in Old Ocean field, Texas. The eight gas-engine-driven compressors are G-MV two-cycle "sixes", each rated 600 hp at 300 rpm and driving 5" x 14" forged-steel, high-pressure, single-acting compressor cylinders.

The largest pressure-maintenance project of its kind anywhere! The toughest compressing job in Texas, with 4,000-pound discharge pressures . . . and Type G-MV's were picked to "lick" it!

We'll stick to the truth . . . the job wasn't easy. But, Type G-MV's certainly mastered it . . . so well that their owners have ordered six more identical units!

Everywhere, Type G-MV's are doing great work . . . because they're designed right, built right, and backed by a 106 years young organization which never fails the customer!

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International

Mexico . .

Output and Exports, Crude and Products

THE production of light petroleum declined from 480,491 cu. m. in December 1938 to 449,424 cu. m. in December 1939. On the other hand, the production of heavy petroleum increased from 35,486 cu. m. in December 1938 to 75,482 cu. m. in December 1939.

Exports of petroleum declined from 216,418 cu. m. in December 1938 to 175,814.5 cu. m. in December 1939.

Exports of petroleum and petroleum products by countries and according to Mexican tariff classifications for October follows (a cubic meter equals 6.29 bbl. of 42 U. S. gal.):

EXPORTS OF CRUDE OIL WITH A DENSITY OF 0.96 OR LOWER BY COUNTRIES DURING OCTOBER 1939

(Tariff Fraction—228-A)

Country—	Cubic meters	Pesos
Lands End	5,121	120,907
Total	5,121	120,907

EXPORTS OF CRUDE OIL WITH A DENSITY HIGHER THAN 0.96 BY COUNTRIES DURING OCTOBER 1939

(Tariff Fraction—228-B)

Country—	Cubic meters	Pesos
United States	107,232	1,969,852
Lands End	80,835	2,211,646
Italy	7,753	241,506
Panama	2	37
Total	195,822	4,423,041

EXPORTS OF FUEL OIL BY COUNTRIES DURING OCTOBER 1939

(Tariff Fraction—228-C)

Country—	Cubic meters	Pesos
United States	5,197	126,963
Germany	2,453	59,927
Italy	3,342	81,645
Panama	527	12,875
Norway	1,583	38,673
Total	13,102	320,083

EXPORTS OF GAS OIL BY COUNTRIES DURING OCTOBER 1939

(Tariff Fraction—228-D)

Country—	Cubic meters	Pesos
United States	77	3,550
Germany	957	41,433
Lands End	62,893	3,049,342
Italy	866	37,489
British Honduras	27	1,234
Norway	653	29,836
Sweden	413	17,879
Total	65,886	3,180,763

EXPORTS OF REFINED GASOLINE BY COUNTRIES IN OCTOBER 1939

(Tariff Fraction—228-F)

Country—	Cubic meters	Pesos
Lands End	39,590	1,976,333
Guatemala	136	6,789
British Honduras	1	50
Total	39,727	1,983,172

EXPORTS OF REFINED KEROSENE BY COUNTRIES IN OCTOBER 1939

(Tariff Fraction—228-H)

Country—	Cubic meters	Pesos
Lands End	1,394	60,751
Italy	5	218
British Honduras	1	44
Total	1,400	61,013

EXPORTS OF LUBRICANTS AT 20° C. DURING OCTOBER 1939

(Tariff Fraction—228-I)

Country—	Cubic meters	Pesos
United States	1	275
Germany	1	275
British Honduras	2	525
Norway	2	560
Total	6	1,635

EXPORTS OF ASPHALT BY COUNTRIES DURING OCTOBER 1939

(Tariff Fraction—228-J)

Country—	Cubic meters	Pesos
Belgium	7,776	361,396
Netherlands	1,076	50,366
Sweden	299	16,659
Total	9,151	428,421

Haiti . .

Atlantic Refining Co. Geologists on Survey

GEOLOGICAL parties are now at work in Haiti in the Culdesac Valley around Hinche, preparatory to starting the secondary phase of exploration. Atlantic Refining Co., one of the first large United States companies to start exploration in Cuba, has acquired a controlling interest in a concession covering about 3,000,000 acres.

At the end of 3 years from date of the concession, a primary term which will expire in the latter part of 1942, a selection of acreage for exploration must be made.

As one of the first steps in studying the oil possibilities of Haiti, the owners have acquired an airplane for aerial photography work. The aerial investigation will aid in selecting the areas for more detailed investigation.

Near East . .

Allies Prepared to Protect Oil Supply

EVENTS of the past week in the European political maneuvers have again focused attention on the question of petroleum supplies available to the belligerent and neutral nations. Seizure by Turkey of the Krupp-owned shipyards on the Golden Horn added a grain of confirmation to the growing impression that spring fighting will be concentrated at the start in the Near East.

Russian troop movements to the Soviet-Afghanistan border have been reported in European dispatches, although Moscow declares they are only of a routine character. It is reported also that French and British forces in Near Eastern territories have been gradually increased during the winter lull until the combined strength in that area now totals between 1,500,000 and 2,000,000 troops.

Some European observers write and speak as though convinced Germany will strike through Rumania and the Balkans when spring arrives in an effort to cut the Mediterranean artery through which Great Britain and France are drawing numerous essential materials, not the least of which is petroleum from Iran, Iraq, Egypt, Bahrein and Saudi Arabia.

Iran currently produces about 200,000 bbl. daily, most of which goes to Great Britain and France. Iraq's production of about 80,000 bbl. daily moves by pipe line to shipping terminals at Haifa and Tripoli. Bahrein Island produces about 20,000 bbl. daily, distributed largely in the Near and Far East territory.

It is no secret that practically all oil wells in Rumania, Iran, Iraq and Bahrein Island are equipped with devices to render them impotent on a minute's notice from a central, remote location, in the event of emergency.

Rumania . .

Order Bans Increase In Storage Tanks

THE Rumanian oil commissioner has issued an order forbidding the making, sale, hiring or removal of petroleum tanks that have a capacity of more than 10,000 l. (2,642 bbl.) without special permission of the commission. This order, which refers only to fixed reservoirs, prevents oil companies from increasing their storage capacity and forces them to sell any surplus.

The chief oil buyer recently has been a British company, which has bought up large quantities of petroleum but has left it in the seller's containers. That company will now be compelled to stop buying or export the oil.

The Germans have sent to Rumania an expert, Hans Bosghe of Hamburg, to deal with the oil question. He is a German petroleum commissioner.

Dr. Guido Schmidt, managing director of the Hermann Goering Works and former Austrian foreign minister, who took a part in the negotiations of Kurt Clodius, German trade expert, has left Bucharest. Before his departure Dr. Schmidt, whose negotiations were mainly connected with the transport question, went on a trip to Giurgiu, an oil port on the Danube, accompanied by a few members of the new oil commission and by many German engineers and experts.

A French petroleum adviser has arrived in Bucharest.

In reply to contentions that Germany was not receiving assistance from Russia as she expected following the conclusion of the nonaggression and trade agreements with her communist neighbor, Berlin authorities last week asserted that both oil and gasoline in sizable quantities were being sent to the Reich by the Russians. Deliveries were crossing the Soviet-Reich border, it was stated, at junctions at Prostken-Grajewo and Zurawica-Przemysl, where several hundred war prisoners have been put to work transferring shipments from Russian to German trains, which is necessary because of the different-gage track.

At Zurawica-Przemysl the Germans said 20 trains with a total of 210 tank cars (about 82,000 bbl.) of Russian oil entered Germany between December 19 and January 20. Traffic at this junction began December 19.

Brazil . .

To Drill Deeper Test Near Bahia Discovery

THE new producing well at Bahía, Brazil, appears to be capable of approximately 15 bbl. daily from about 20 ft. of sand between 1,230 and 1,287 ft. Casing was set in the well at 1,220 ft. and it has been tubed and completed at this point.

Equipment is to be moved to another nearby location for a second test in the territory which will continue below the producing horizon in the discovery well in search of deeper sands.

Importance of the well lies in the fact that it definitely proves the existence of petroliferous conditions in the Bahia basin. Showings of oil and gas have been reported in the test now drilling at Maceio. Drilling continues in the Maceio test at approximately 4,200 ft.

A sure thing

When a refiner installs Dubbs-cracking for the first time he is taking no chances—he knows what it will do for him

When a Dubbs refiner increases his cracking capacity he has *proved* what Dubbs-cracking does for him

Either way it's a wise decision

And it's wise to install U. O. P. catalytic polymerization, too

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Dubbs Cracking Process
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PROGRAMS AND MEETINGS

Illinois-Indiana Petroleum Conference on June 1

The eighth annual Petroleum Conference of the Illinois-Indiana Petroleum Association is to be held at Robinson, Ill., on Saturday, June 1.

Liquefied Petroleum Gas Association Program

A 2-day program has been prepared for the annual convention of the Liquefied Petroleum Gas Association, which is to open Monday morning, February 26, in the Netherland-Plaza Hotel, Cincinnati, Ohio, where all sessions will be held. In conjunction with the convention there is to be a large exhibit of appliances and equipment. The program:

Monday, February 26

9 a.m.—Registration.

12:30 p.m.—Luncheon. Address of welcome by Mayor J. D. Stewart of Cincinnati.

2 p.m.—"Showmanship in Selling," by George S. Jones, Servel, Inc.

2.45 p.m.—"Cavalcade of Liquefied Petroleum Gases," by C. L. Parkhill, Parkhill-Wade, Inc.

3:30 p.m.—"Liability in Accidents Caused by Gas Leaks," by Leo T. Parker.

4:15 p.m.—"Actionized Selling," by E. C. Sorby, George D. Roper Corp.

Tuesday, February 27

10 a.m.—Annual business meeting. Reports of officers. Reports of committees. Election of officers.

12:30 p.m.—Luncheon. Liquid-air demonstration by Air Reduction Co.

2 p.m.—"Automatic Water Heating in the Rural Home," by A. G. Blake, Ruud Manufacturing Co.

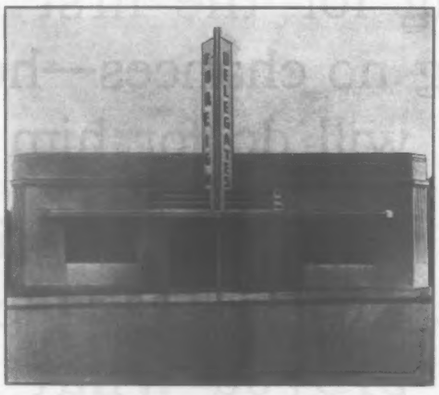
2:45 p.m.—"Regulations," by H. Emerson Thomas, Phillips Petroleum Co.

3:30 p.m.—"Destructive vs. Creative Selling," by E. W. Johnson, American Gas Service Co.

4:15 p.m.—"Propane for Cutting," by Matthew Wigton, Bastian-Blessing Co.

International Delegates Building for Expo

Construction of an International Delegates Building for the 1940 International Petroleum Exposition in Tulsa, will be begun this month. It will be contributed by W. R. Braden, of the Braden Steel Co., and will serve as headquarters for the Nomad chapters in handling visitors from abroad.



International Delegates Building

The announcement was made at a meeting of the committee appointed by Pres. Fred Cooper, of the Tulsa Nomads chapter, to secure cooperative effort from the Los Angeles and Houston chapters in inviting and entertaining oil men from abroad during the exposition. The committee consists of W. R. Braden, H. M. Cosgrove, George MacDonnell, representing the Los Angeles chapter, General Manager W. B. Way, of the exposition, and Leslie Brooks, publicity director.

James H. Gardner, chairman of the international delegates in 1938, has been asked to serve again. Alf. Heggem will be chairman of the entertainment committee. Barton Myers, International Petroleum Co., will be asked to be honorary general chairman.

Entertainment Program For A.P.I. at Wichita

A stag dinner for delegates to the annual spring meeting of the American Petroleum Institute to be held in Wichita, Kans., March 14, will feature the entertainment plans for the 2-day convention scheduled by the Mid-Continent Section of the Division of Production, according to R. E. (Dick) Adams, publicity chairman, Cities Service Oil Co. The annual convention dinner will be held on the closing evening, March 15.

H. W. Cardwell, Wichita, Cardwell Manufacturing Co., chairman of the entertainment committee, is being assisted by H. E. Zoller, Wichita, Derby Oil Co.; Walter Kuhn, Wichita, independent producer; Ernie J. Shaffer, Hutchinson, independent drilling contractor; Max M. Mahaffey, Oil Hill, Cities Service Oil Co.; Harland Cardwell, Jr., Wichita, Cardwell Manufacturing Co.; S. F. Greeley, Wichita, Lone Star Cement Co.; C. A. Black, Wichita, Bovaird Supply Co.; C. A. Daniels, Amarillo, Phillips Petroleum Co.; Jack A. Vickers, Wichita, Vickers Petroleum Co.; George Hoisington, Wichita, Halliburton Oil Well Cementing Co.; J. F. O'Shaughnessy, Lario Oil & Gas Co.; Lee Phillips, Wichita, independent producer, and W. H. Reardon, Greenwich, Shell Oil Co., Inc.

Governor Phillips to Speak at California A.P.I. Meeting

Gov. Leon C. Phillips, of Oklahoma, has accepted an invitation to be the guest speaker at the evening session of the spring meeting of the American Petroleum Institute, Pacific Coast district, Division of Production, in Los Angeles, March 19. Governor Olson, of California, extended the invitation in behalf of the Pacific Coast district of the A.P.I.

CALENDAR OF EVENTS

February

ILLINOIS BASIN CHAPTER, A.P.I. DIVISION OF PRODUCTION, at Emerson Hotel, Mount Vernon, Ill., February 23.

NORTH TEXAS OIL AND GAS ASSOCIATION, tenth annual meeting, Wichita Falls, Tex., February 24.

LIQUEFIED PETROLEUM GAS ASSOCIATION annual meeting, Netherland-Plaza Hotel, Cincinnati, Ohio, February 26-27.

March

AMERICAN SOCIETY FOR TESTING MATERIALS, Statler Hotel, Detroit, Mich., March 4-5.

AMERICAN PETROLEUM INSTITUTE, Mid-Continent district, Division of Production, Wichita, Kans., March 14-15.

AMERICAN PETROLEUM INSTITUTE, Pacific Coast district, Los Angeles, Calif., March 19.

AMERICAN PETROLEUM INSTITUTE, Southwestern district, Division of Production, Houston, Tex., March 28-29.

WESTERN PETROLEUM REFINERS ASSCIATION, annual meeting, Allis Hotel, Wichita, Kans., March 31-April 2.

April

AMERICAN CHEMICAL SOCIETY, Cincinnati, Ohio, April 8-12.

SOCIETY OF EXPLORATION GEOPHYSICISTS annual meeting, Stevens Hotel, Chicago, April 9-11.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, annual meeting, Stevens Hotel, Chicago, April 10-12.

SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS, annual meeting, Stevens Hotel, Chicago, April 11.

AMERICAN PETROLEUM INSTITUTE, eastern district, Division of Production, Columbus, Ohio, April 11-12.

SOUTHWESTERN GAS-MEASUREMENT SHORT COURSE, University of Oklahoma, Norman, April 16-18.

NATIONAL PETROLEUM ASSOCIATION, semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, April 18-19.

May

PETROLEUM INDUSTRY ELECTRICAL ASSOCIATION, Dallas, Tex., May 1-3.

NATURAL GAS SECTION, AMERICAN GAS ASSOCIATION, thirty-fifth annual meeting, Houston, Tex., Rice Hotel, May 6-10.

NATURAL GASOLINE ASSOCIATION OF AMERICA, annual convention, Hotel Tulsa, Tulsa, May 15-17.

NATIONAL OIL SCOUTS AND LAND MEN'S ASSOCIATION, annual convention, Little Rock, Ark., May 16-18.

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.

AMERICAN PETROLEUM INSTITUTE, midyear meeting, Fort Worth, Tex., May 27-31.

June

ILLINOIS-INDIANA PETROLEUM CONGRESS, eighth annual meeting, Robinson, Ill., June 1.

AMERICAN SOCIETY FOR TESTING MATERIALS, Chalfonte-Haddon Hall, Atlantic City, N. J., June 24-28.

September

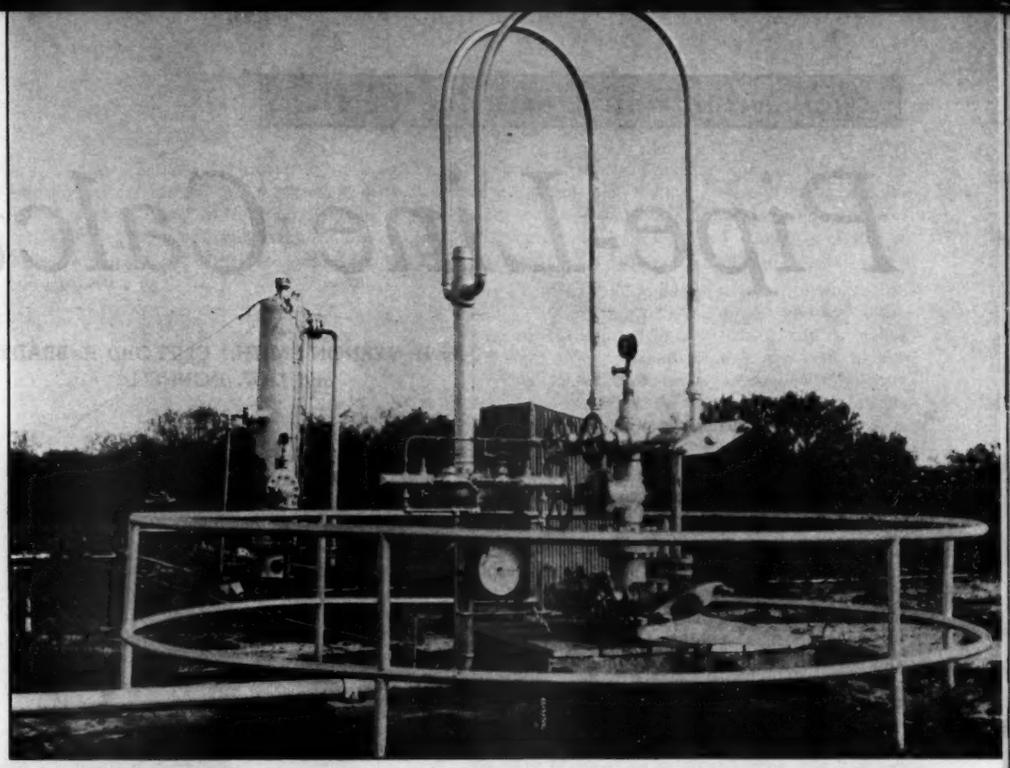
NATIONAL PETROLEUM ASSOCIATION, thirty-eighth annual meeting, Hotel Traymore, Atlantic City, N. J., September 18-20.

October

NATIONAL SAFETY CONGRESS, Stevens Hotel, Chicago, October 7-11.

November

AMERICAN PETROLEUM INSTITUTE, twenty-first annual meeting, Stevens Hotel, Chicago, November 11-15.



High-pressure gas properties are operated in connection with recycling projects by a type of engineering developed to meet a special set of requirements. This illustration shows christmas tree, connections, recording-flow meter, pressure gage, and test equipment including a separator. This is No. 6 Wardner, a producing well of Corpus Christi Corp. in the Stratton ranch, Nueces County, Texas. Well-head pressure is 2,555 lb.; potential, 56,000,000 cu. ft.; total depth, 8,431 ft.

ENGINEERING & OPERATING

FEBRUARY 15, 1940

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In the present era of expanding pipe lines the same problems of pipe diameter, capacity, friction losses, viscosity of the fluid, etc., come before the engineer for solution and here the authors make available diagrams and sample calculations that should facilitate design of lines.

LATEST ENGINEERING PRACTICES IN ARKANSAS' CONSERVATION ACT

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Second and concluding discussion of the engineering phases of the Arkansas conservation act which has been designed to utilize the natural pressures to greatest advantage, recover the largest quantity of oil and produce it at the smallest ultimate cost.

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Although the cathead is one of the simplest moving parts on the drilling floor, it can be the most dangerous one because it is elevated to catch vital parts of the body if the operator allows his clothing to be caught. Precautions to be used in handling the lines over the cathead are itemized.

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Pipe-Line Calculations

By H. VERNON SMITH,* CLIFFORD H. BRADY† and J. W. DONNELL‡

ALTHOUGH Sir Osborne Reynolds pointed out the effect of pipe diameter, velocity, density, and viscosity on fluid flow as early as 1880, the number of pipe-line calculations today in which one or more of these factors is disregarded is surprising. This is perhaps due to the rapid growth of the pipe-line industry, which taxed the ingenuity of all types of engineers.

Heltzel, in 1926,[1] published a paper which reviewed the work of Reynolds and showed the necessity for using in pipe-line pressure-drop calculations the Fanning equation, which is based on Reynolds' work. He also pointed out the fact that the Fanning equation was well supported by operating data from many existing pipe lines. The purpose of this article is to present further evidence that data from present pipe lines support the above-named equation, to offer graphical means of calculating complicated pipe-line systems, and to derive an equation for the most economical pipe diameter to use under given conditions. Even though most of the sample calculations appearing here are based on the flow of crude oil, it should be clearly understood that similar calculations can be made for any fluid petroleum, whether liquid or gaseous. Of course this would include all petroleum gases, gasolines, kerosenes, gas oils, lubricating oils, etc. All of the equations appearing herein are dimensionally true and when the physical properties of viscosity and density are used in the correct units of pounds per foot-second and pounds per cubic foot, respectively, in the calculations, correct results will be obtained.

It will be recalled that in the Fanning equation, $\Delta P_f = 2fLU^2\rho/gD$ (see end of article for nomenclature) the friction factor, f, is expressed as a function of the Reynolds number, $DU\rho/\mu$. This friction factor, as shown in Fig. 1, is the result of many hundreds of tests on a wide variety of fluids, including some recent high-pressure, large-diameter, pipe lines. This graph represents the latest available data for the friction factor where the densities of the fluids varied more than 80,000 per cent, velocities more than 150,000 per cent, viscosities 350,000 per cent, and pipe diameters more than 12,000 per cent. The equation of the line AB is for commercial pipe and may be expressed by the following equation:[2]

$$\frac{1}{\sqrt{f}} = 3.2 \log (Re\sqrt{f}) + 1.2$$

This equation is known as the Drew-Genereaux equation. The line CD represents the Nikuradse equation, $1/\sqrt{f} = 4 \log (Re\sqrt{f}) - 0.4$, for smooth pipe and tubes. The line $f = 16/Re$ is for streamline flow and can be derived theoretically. The first two equations were fitted to the many hundreds of tests referred to above. The maximum deviation from these equations for any point was less than 5 per cent.

In solving for the pressure drop for a given pipe line it is not practical to use the above equations, and the graph is used instead. The equations in this case are valuable only to locate definitely a mean-average line when plotting f vs. Reynolds number.

An example of the use of the Fanning equation in calculating pressure drops in oil pipe lines is given below:

Illustration: It is required to calculate the pressure drop in a 4-in. diameter pipe line 25 miles long, when 5,000 bbl. per day of oil having a gravity of 30° A.P.I. and a viscosity of 60 S.S.U. at pumping temperatures are pumped through the line.

Solution:

Sp. gr. = 141.5 / (131.5 + 30) = 0.876
ρ = 0.876 × 62.4 = 54.7 lb./cu. ft.
μ = 0.876 [0.22 × 60 — (180/60)] 0.000672
μ = 0.006 lb./ft. sec.
$U = Q/A$ = 5,000 × 0.000065 / 0.7854 × 0.333² = 3.72 ft./sec.
$Re = DU\rho/\mu$ = 0.333 × 3.72 × 54.7 / 0.006 = 11,160
f = 0.0082, Read from Fig. 1
$\Delta P = 2fLU^2\rho/144gD$
$\Delta P = 2 \times 0.0082 \times 25 \times 5{,}280 \times 3.72^2 \times 54.7 / 144 \times 32.2 \times 0.33$
ΔP = 1,060 lb./sq. in.

As can be seen, this calculation is easily made by use of the Fanning friction factor as determined from Fig. 1, where f is plotted against Reynolds number.

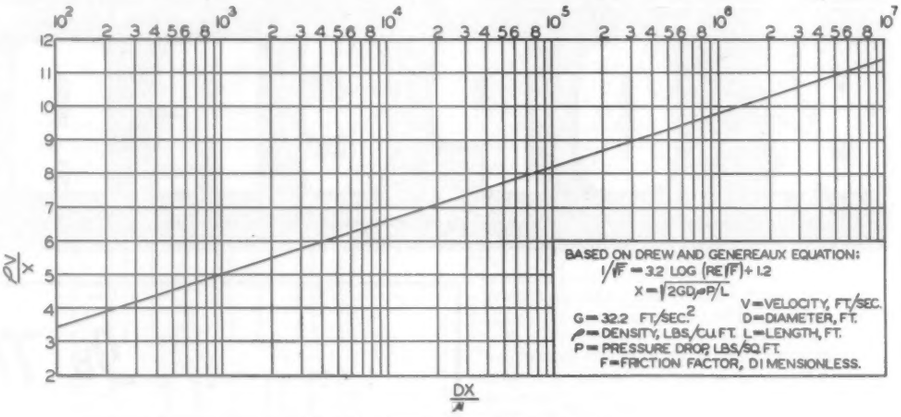
BASED ON DREW AND GENEREAUX EQUATION:
1/√F = 3.2 LOG (RE√F) + 1.2
X = √(2GDρP/L
G = 32.2 FT./SEC.²
V = VELOCITY, FT./SEC.
D = DIAMETER, FT.
ρ = DENSITY, LBS./CU.FT.
L = LENGTH, FT.
P = PRESSURE DROP, LBS./SQ.FT.
F = FRICTION FACTOR, DIMENSIONLESS.
DX/μ
Y/X

Fig. 2—Capacity-determination chart

The problem that now arises is how to calculate the capacity of a given pipe line having given the pressure drop, diameter, and physical characteristics of the flowing oil. Such a problem would be as difficult to solve as the previous problem if the Drew-Genereaux equation were used in both cases. On the other hand, if the graph in Fig. 1 were used, a long and tedious problem of trial and error would result. However, Walker, Lewis, McAdams, and Gilliland[3] have replotted the various factors in the Fanning equation so that the capacity of the pipe line can be solved directly. Such a graph is shown in Fig. 2. An example will illustrate its use:

Illustration: Let it be required to calculate the capacity of an 8-in. diameter pipe line 30 miles long where the maximum pressure drop is 900 lb. per sq. in. The oil being pumped has a gravity of 30° A.P.I. and a viscosity of 80 S.S.U.

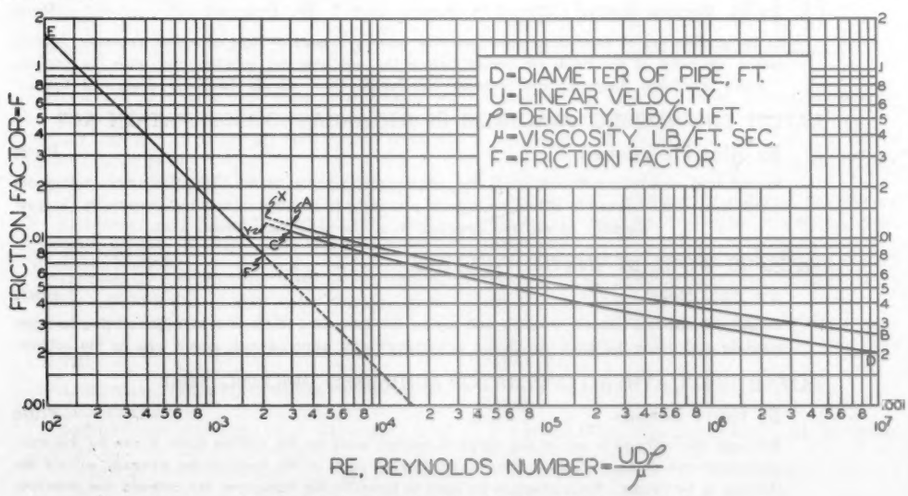

Fig. 1—Chart to enable determination of friction factor

*Assistant engineer, W. C. McBride, Inc.
†Senior, petroleum engineering, University of Oklahoma.
‡Professor of petroleum engineering, University of Oklahoma.

Solution:

$SP.\ gr. = 141.5 / (131.5 + 30) = 0.876$
$\rho = 62.4 \times 0.876 = 54.7$ lb./cu. ft.
$\mu = 0.876\ [0.22 \times 80 = (180/80)\ ]\ 0.000672$
$\mu = 0.009$ lb./ft. sec.
$X = \sqrt{2gDP/L}$
$X = \sqrt{2 \times 32.2 \times 54.7 \times 0.667 \times (900 \times 144) / (5{,}280 \times 30)}$
$X = \sqrt{1{,}922} = 43.8$
$DX/\mu = 0.667 \times 43.8 / 0.009 = 3{,}245$

From Fig. 2, Read $\rho U/X = 5.86$
$54.7\ U/43.8 = 5.86 \qquad U = 4.69$ ft./sec.
Capacity $= U \times A/0.000065 = 4.69 \times 0.342 / 0.000065 = 24{,}670$ bbl./day

The remaining problem is to calculate the required diameter of a pipe line having given the pressure drop, capacity, and physical characteristics of the oil being pumped. C. F. Bonilla[4] has plotted the factors in the Fanning equation so that the diameter can be determined directly in somewhat the same manner as the capacity is determined by the Walker, Lewis, McAdams, and Gilliland plot. Fig. 3 shows such a plot. The following example will illustrate the use of this graph.

Illustration: Calculate the required diameter of a pipe line 35 miles long having a capacity of 40,000 bbl. per day. The oil being pumped has an A.P.I. gravity of 38° and a viscosity of 100 S.S.U. at pumping temperature. The pressure drop due to friction is not to exceed 800 lb. per sq. in.

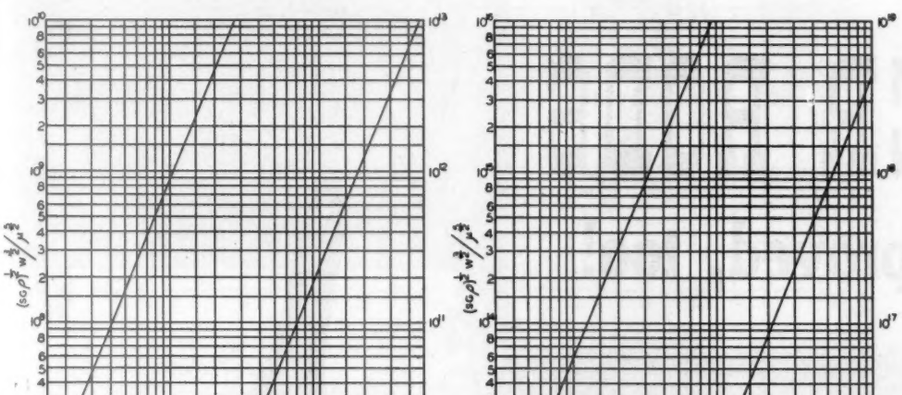

Fig. 3—Chart enabling determination of pipe-line diameter

Solution:

Sp. gr. $= 141.5/(131.5 + 38) = 0.835$
$\rho = 0.835 \times 62.4 = 52.09$ lb./cu. ft.
$\mu = 0.835\ [0.22 \times 100 — (180/100)\ ]\ 0.0000672$
$\mu = 0.0113$ lb./ft. sec.
$s = (800 \times 144)/(5{,}280 \times 35) = 0.623$ lb./ft.
$w = 40{,}000 \times 0.000065 \times 52 = 135.2$ lb./sec.

$$\frac{(sg\rho)^{1/3}\ x\ w^{2/3}}{\mu^{5/3}} = \frac{(0.623 \times 32.2 \times 52)^{1/3} \times (135.2)^{2/3}}{(0.0113)^{5/3}} = 3.75 \times 10^6$$

From Fig. 3:

$DU\rho/\mu = 1.82 \times 10^4 = 18{,}200$
$U = Q/A = Q/(D^2 \times 0.7854)$
$D\rho Q/(\mu \times D^2 \times 0.7854) = 18{,}200$
$D = (40{,}000 \times 0.000065 \times 52)/(0.785 \times 0.0113 \times 18{,}200)$
$D = 0.8374$ ft.
$D = 10.049$ in.
Use 10-in. line

Other problems of a somewhat more complicated nature are those of looped and branched pipe lines. The problem of calculating the size of a loop in a pipe line can best be understood by the illustrated problem outlined below:

Illustration: An existing pipe line 30 miles long and 8 in. in diameter has a capacity of 20,000 bbl. per day, when transporting a 31° A.P.I. oil with a viscosity of 100 S.S.U. at line temperature. Calculate the size of a loop necessary to allow an increase in capacity to 50,000 bbl. per day when the total pressure drop is 1,000 lb. per sq. in.

Sp. gr. $= 141.5/(131.5 + 31) = 0.871$
$\rho = 0.871 \times 62.4 = 54.4$ lb./cu. ft.
$\mu = 0.871\ [0.22 \times 100 — (180/100)\ ] \times 0.000672$
$\mu = 0.01182$ lb./ft. sec.
Use capacity chart, Fig. 2.
$X = \sqrt{2gD\rho P/L}$
$X = \sqrt{2 \times 32.2 \times 0.667 \times 54.4 \times 1{,}000 \times 144/(5{,}280 \times 30)}$
$X = 46.1$
$DX/\mu = 0.667 \times 46.1/0.01182 = 2{,}601$

From chart, Fig. 2, $\rho U/X = 5.65$
$U = 5.65 \times 46.1/54.4 = 4.78$ ft./sec.
$Q = 4.78 \times 0.667 \times 0.7854/0.000065 = 25{,}690$ bbl./day
$50{,}000 — 25{,}690 = 24{,}310$ bbl./day through loop
$q = 24{,}310 \times 0.000065 = 1.58$ c.f.s.
$s = \Delta P_f/L = 1{,}000 \times 144/35 \times 5{,}280 = 0.78$ lb./ft.
$w = 24{,}310 \times 0.000065 \times 54.4 = 85.95$ lb./sec.

$$\frac{(sg\rho)^{1/3}\ x\ w^{2/3}}{\mu^{5/3}} = \frac{(0.78 \times 32.2 \times 54.4)^{1/3} \times (85.95)^{2/3}}{0.01182^{5/3}} = 37 \times 9.27 \times 85.95/0.01182 \times 0.108 = 1{,}942{,}600{,}000 = 1.94 \times 10^9$$

From Fig. 3:

$DU\rho/\mu = 1.4 \times 10^4 = 14{,}000$
$U = q/A = 1.58/0.7854 \times D^2$
$D = 54.4 \times 1.58/0.01182 \times 0.7854 \times D^2 = 14{,}000$
$D = 54.4 \times 1.58/0.01182 \times 0.7854 \times 14{,}000 = 0.661$ ft.
$D = 7.93$ in.
Use an 8-in. line.

Fig. 4 shows a diagram of a branched pipe-line system where a 10-in. diameter line feeds three refineries through smaller lines terminating at different elevations. The problem involved here is to calculate the quantity of oil reaching the refineries at the points *B*, *C*, and *D*, if 36,000 bbl. per day is pumped through the main line. The oil being pumped has a gravity of 38° A.P.I. and a viscosity of 50 S.S.U.

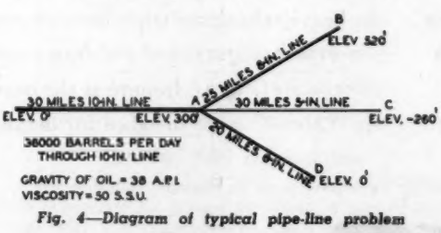

Fig. 4—Diagram of typical pipe-line problem

At this point it is necessary to make some simplifications in the Fanning equation in order to avoid a long and tedious trial and error calculation (or avoid using Newton's approximation method). It will be observed from Fig. 1 that a straight line substituted for the curve, $1/\sqrt{f} = 3.2 \log (Re\sqrt{f}) + 1.2$, between the points where the curve cuts the line $DU\rho/\mu = 10{,}000$, and where the curve cuts the line $DU\rho/\mu = 100{,}000$, will not cause an error of more than 0.3 of 1 per cent in the friction factor. Fortunately, practically all the Reynolds numbers for oil-pipe-line calculations fall within the range of 10,000 to 100,000. This straight line can then be represented by an equation of the type $f = KRe^n$. This equation will be a straight line when plotted on log-log paper, where, n, is the slope of the line (0.195 in this case), and K is the intercept when Reynolds number equals one. Then the Fanning equation, $\Delta P_f = 2fLU^2\rho/gD$, may be written $\Delta P_f = 2KD^{n-1}LU^{2+n}\rho^{1+n/g}$.

For the problem in question, the diameter, length, and density are constant and we may write $\Delta P_f = CU^{2+n}$ for any one of the branches in question where C equals a constant. This equation will also be a straight line on log-log paper when plotting ΔP_f against U and all such lines will be parallel regardless of the values of ΔP_f, C, or U since $2+n$ is the slope of all the lines. Fig. 5 shows such a set of lines plotted for the three branches in question. It is necessary to solve only four points to determine these three lines, two on the first and one on each of the other two lines, since all three lines are parallel. These four points are easily determined by assuming any capacity, one for each point, and solving for the pressure drop by means of the Fanning equation.

The fourth line, representing the sum of the other three lines, is obtained by assuming some pressure drop, for example, 520 lb. per sq. in. in this case, and proceeding horizontally to the 5-in. line (follow the dot-dash line) where an allowance must be made for the elevation difference between branch point and the terminal. In the case of the 5-in. line additional pressure drop must be added corresponding to the 300-ft. drop in elevation or 108.4 lb. per sq. in. This 108.4 lb. per sq. in. is added by proceeding vertically to 628.4 lb. per sq. in., then horizontally again to meet the 5-in. line and then to the abscissa where the capacity of the 5-in. line is read for a pump pressure at 520 lb. per sq. in. (see Fig. 4). In like manner the capacity of the other two lines is determined for the assumed pump pressure of 520 lb. per sq. in. Note that in correcting for the elevation for the 8-in. line the correction must be subtracted, not added. The sum of the capacities of these three lines then gives a point on the fourth curve corresponding to the pressure drop of 520 lb. per sq. in. Then a line through this point and parallel to the other three constitutes the fourth line. The quantity of oil flowing through each of the three branches is determined by starting on the abscissa with the 36,000 bbl. which is the total quantity to be put through the system, proceeding vertically to the fourth line then horizontally to the 8-in. line (follow the dotted line) correcting for elevation, and proceeding vertically to the abscissa where the quantity of oil flowing from the 8-in. line is read. Proceeding in a like manner to the 6 and 5-in. lines the quantities of 13,000 bbl. and 5,700 bbl. for the 6 and 5-in. lines respectively are read. The pressure necessary to force the 36,000 bbl. through the three branches is found by extending the dotted line to the ordinate where the pressure of 390 lb. per sq. in. is read.

The most economic pipe diameter.—The most economical pipe diameter for the transportation of a given quantity of oil per day is determined by many factors, such as cost of pipe and installation, cost of pumps, fuel cost, maintenance and operating expense, amortization, etc. Other factors

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may enter into the optimum pipe-diameter calculation, but these main factors can be used as an illustration. Any other costs entering into such calculations can easily be added. The general cost equation may then be expressed as follows:

Total cost = (cost of pipe and installation) depreciation + (pump cost) depreciation + fuel + maintenance and operating cost. (1)

In the above equation, each term on the right-hand side must be expressed as a function of the pipe diameter, if the minimum cost is to be obtained by the usual procedure of differentiating cost with respect to diameter, dc/dD, and setting the differentiated equation equal to zero. The equation is then solved for D, the most economic diameter.

In the following development of a general equation for the most economic pipe diameter, the simplified form of the Fanning equation as given in the fourth illustration, is used. Installed pipe cost which includes the following items: right-of-way, trenching, pipe, haulage, labor, field welding, and pipe conditioning, can be expressed by the following equation:

$$\text{Pipe cost} = (1{,}700 + 10{,}000\ D)Z \times L$$

It is usually a company's policy to amortize the pipe at a certain per cent of the cost per year. This yearly amount is such that the time for amortization varies from 10 to 20 years.

The pump cost is considered as the cost of the pump stations plus the installed pump cost and is expressed as dollars per brake-horsepower. In making calculations it is customary to amortize the pump at a given rate, which varies widely, depending upon the company's policy.

Fuel cost is the cost of the fuel consumed by the pump in delivering the required amount of horsepower hours. The cost is usually stated in dollars per brake horsepower. Maintenance costs include labor, repairs, and other overhead incidentals to the upkeep and operation of the pipe-line system. The maintenance cost can be estimated in a lump sum.

A general equation for determining the most economical size of pipe to use for a given set of conditions is derived here.

$$\text{Fuel cost} = \text{hp.hr.} \times m \times o/5.61 \times \rho \quad (2)$$

$$\text{hp.hr.} = Q \times 0.000065 \times \Delta P_t \times 24 \times j/550 \times e \quad (3)$$

$$\Delta P_t = 2fLU^2\rho/gD \quad (4)$$

From Fig. 1, taking the part of the curve between the limits of Reynolds number = 10,000 and Reynolds number = 100,000, the equation of this part of the determined curve is

$$f = 0.057\ (\mu/DU\rho)^{0.195}$$

$$\Delta P_t = 2 \times L \times \rho \times 0.057 \times \mu^{0.195}/gD \times D^{0.195} \times \rho^{0.195} / (Q \times 0.000065/0.7854D^2)^{1.805} \quad (5)$$

Substituting the value of ΔP_t in Equation 5 into Equation 3, and then substituting this value of hp.hr. into the following equation for fuel cost:

$$\text{Fuel cost} = 7.62 \times 10^{-17} \times L \times Q^{2.805} \times m \times o \times j \times \mu^{0.195}/D^{4.805} \times \rho^{0.195} \times e \quad (6)$$

$$\text{Pump cost} = \text{Hp} \times I \times y \quad (7)$$

$$\text{Hp} = Q \times 0.000065 \times \Delta P_t/550 \times e$$

$$\text{Pump cost} = 1.78 \times 10^{-17} \times \rho^{0.805} \times \mu^{0.195} \times I \times y \times Q^{2.805} \times L/e \times D^{4.805} \quad (8)$$

$$\text{Pipe cost} = (1{,}700 + 10{,}000\ D)\ Z \times L_o \quad (9)$$

$$\text{Maintenance} = \text{constant} = b \quad (10)$$

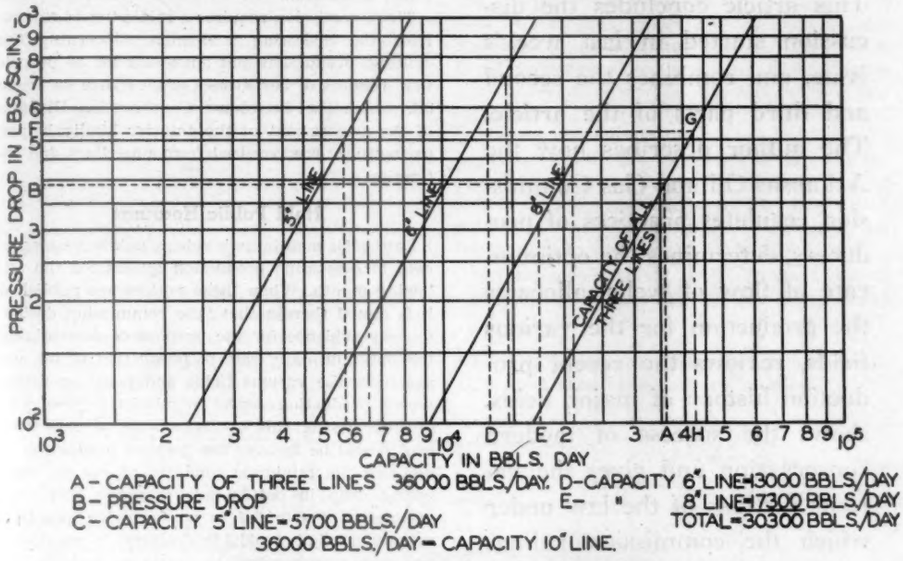
PRESSURE DROP IN LBS./SQ.IN.
CAPACITY IN BBLS. DAY
3" LINE
6" LINE
8" LINE
CAPACITY OF ALL THREE LINES
A - CAPACITY OF THREE LINES 36000 BBLS./DAY.
B - PRESSURE DROP
C - CAPACITY 5" LINE = 5700 BBLS./DAY
D - CAPACITY 6" LINE = 13000 BBLS./DAY
E - " 8" LINE = 17300 BBLS./DAY
TOTAL = 30300 BBLS./DAY
36000 BBLS./DAY = CAPACITY 10" LINE.

Fig. 5—Capacities of branch pipe-line determination

$$\text{Total cost} = \frac{7.62 \times 10^{-17} \times L \times Q^{2.805} \times m \times o \times j \times \mu^{0.195}}{D^{4.805} \times \rho^{0.195} \times e} + \frac{1.78 \times 10^{-17} \times \rho^{0.805} \times \mu^{0.195} \times I \times y \times Q^{2.805} \times L}{e \times D^{4.805}} + (1{,}700 + 10{,}000\ D)\ Z \times L_o + b \quad (11)$$

$$\text{Total cost} = \frac{Q^{2.805} \times K \times \mu^{0.195} \times 10^{-17}}{e \times D^{4.805}} \left[\frac{7.62 \times m \times o \times j}{\rho^{0.195}} + 1.78Iy\rho^{0.805}\right] + (1{,}700 + 10{,}000\ D)Z \times L_o + b \quad (12)$$

$$\frac{dC}{dD} = \frac{Q^{2.805} \times L \times \mu^{0.195}}{\rho^{0.195} \times e \times D^{2.805} \times 10^{-17}}$$

$$[36.7\ jmo + 8.55\ Iy\rho] - 10{,}000 \times 0.15L_o = O$$

Ten Per Cent Depreciation

We will now assume it is a company's policy to depreciate its pumps at a rate of 10 per cent per year and their pipe line at a rate of 15 per cent per year. The initial cost per horsepower of pump is $225, and the number of working days per year is 325. The number of pounds of fuel per brake horsepower is 0.45 lb. (m), and the cost of the oil (O) is $1.10 per barrel.

The value at dC/dD now becomes:

$$\frac{dC}{dD} = \frac{Q^{2.805} \times L \times \mu^{0.195}}{\rho^{0.195} \times e \times D^{5.805} \times 10^{17}} [36.7 \times 325 \times 0.45 \times 1.10 + 8.55 \times 225 \times 0.1 \times \rho] - 1{,}500\ L_o \quad O =$$

or

$$\frac{Q^{2.805} \times L \times \mu^{0.195}}{\rho^{0.195} \times e \times D^{5.805} \times 10^{17}} [5{,}904.58 + 192.36\rho] - 1{,}500\ L_o = O$$

Assume that 30,000 bbl. of crude oil with a gravity at 30° A.P.I. and a viscosity of 100 S.S.U. is to be pumped a distance of 30 miles with an allowed pressure drop of 900 lb./sq. in. The efficiency of the pump is 70 per cent. What would be the most economical size diameter line to use?

$$\frac{(30{,}000)^{2.805} \times 30 \times 5{,}280 \times .0118^{0.195}}{(54.6)^{0.195} \times 0.70 \times D^{5.805} \times 10^{17}} [5{,}904.58 + 192.36 \times 54.6] - 1{,}500 \times 30 = O$$

$$\frac{3.614 \times 158{,}400 \times .421 \times 10^{12}}{0.7 \times 2.18 \times 10^{17} \times D^{5.805}} [5{,}904.58 + 10{,}502.86] - 45{,}000 = O$$

$$45{,}000 \times D^{5.805} = 1.579 \times 16{,}407.44$$

$$D^{5.805} = 0.576$$

$$D = 0.576^{1/5.805} = 0.576^{0.1721} = 0.9092 \text{ ft. or } 10.91 \text{ in.}$$

The most economical size to use would be 11-in. line.

Nomenclature

Re = Reynolds number = $DU\rho/\mu$
A = area of inside of pipe, sq. ft.
D = inside diameter, ft.
ρ = density, lb. per cu. ft.
μ = viscosity, lb./ft.-sec.
f = friction factor
g = acceleration due to gravity, ft./sec.^{2}
ΔPf = pressure drop due to friction, lb./sq. ft.
ΔP = pressure drop due to friction, lb./sq. in.
L = length of line, feet
L_o = length of line, miles
U = velocity, ft./sec.
s = pressure drop, lb./sq. ft. length of line.
w = pounds of fluid flowing per second
Q = quantity in bbl./per day/working day
q = cu. ft. per sec.
I = initial cost/hp. of pump in dollars
e = efficiency of pumps, dec.
Z = depreciation of pipe, dec.
y = depreciation of pumps, dec.
b = annual operating maintenance, and repair in dollars
j = working year, days
m = lb. of oil/brake hp. at O cost per bbl.

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BOOKS

VOLUMETRIC AND PHASE BEHAVIOR OF HYDROCARBONS. By Bruce H. Sage and William N. Lacey. 299 pp. Stanford University Press. $5.

The authors claim that this is the first relatively simple description of liquid-gas phase behavior in English. Although its purpose is stated to present a qualitative discussion of behavior, much quantitative information has been incorporated in the figures, a large proportion of which are qualitative in nature rather than illustrative sketches. The emphasis on volumetric behavior is greater than in previous books on phase equilibrium. Most of the fundamental principles discussed are presented either in treatises on physics or physical chemistry, so that the authors have considered it desirable to attempt a development of the subject in a logical manner, without assuming that the reader has made intensive studies of physical chemistry. The authors are in the chemical engineering school of California Institute of Technology, and their present work is associated with Research Project 37 of the American Petroleum Institute.

Latest Engineering Practices Embodied in

Arkansas' Conservation Act

With the result that singular success has marked administration of the program, as here described

BY ALEX M. CROWELL
Director, Arkansas Oil and Gas Commission

ON February 20, 1939, the conservation statute under which production of oil in this state is being regulated was passed by the Arkansas Legislature and designated as Act 105. Some of the most noteworthy provisions are listed at the close of this series, and the reference numbers are noted in the following discussion.

The act created the present commission, which is composed of seven members appointed by the governor for staggered 6-year terms. All members of the commission are experienced in the development, production, and transportation of oil and gas.

The commission is given authority to employ its own personnel which consists, at the present time, of four petroleum engineers, a natural-gas engineer, a geologist, a gager, an accountant, an auditor, a secretary, and a stenographer. The engineers are equipped with bottom-hole pressure bombs, units and trailers, gas-oil ratio portable meters, and all of the necessary engineering equipment. Our two offices are prepared to compile and distribute allocation schedules, check reports, and operate the "tender system." The operating budget comes from an assessment levied upon regulated oil production only.

Under the authority of the statute, the commission makes, for all pools, proper requirements for well casing, blowout prevention, drilling fluid, deviation tests, shooting and perforating, cementing, completion time, tubing chokes, separators, christmas trees, and surface equipment.

Well-head fittings are also required that will facilitate the taking of bottom-hole pressures, valves are required for ease in obtaining casing and tubing pressures, and orifice meters are required in some pools on the gas-vent line of every separator for continuous determination of operating gas-oil ratio.

Electrical logging, in addition to the driller's log, is required and the companies operating furnish the regulatory body with the drilling-time records, core analyses, crude analyses, and other information.

A careful record of producing gas-oil ratios, static and flowing bottom-hole pressures, progressive structure maps, etc., are kept throughout development on all pools by the commission's engineers. The commission, by setting sizable drilling units, and appreciable production allowables, is in a position quickly to arrange that the pools be efficiently and equitably depleted.

The spacing pattern is one well to the center of each drilling unit.[1] Where two or more separately owned tracts are embraced within a drilling unit, the interests are required to be integrated.[2] Where a unit is found to be partly outside the productive limits of a pool, a well is allowed on the fractional unit and production set commensurate with the value of the unit fraction. This procedure has resulted in unit operation of pools by implementation. There has been only one case of enforced integration, the operators preferring to voluntarily agree upon terms of interest unitization.

This article concludes the discussion started in last week's issue, and combines the second and third parts of the article. The author describes how the Arkansas Oil and Gas Commission regulates practices of producers, determines the optimum rate of flow of wells, allocates the production for the various fields, reviews the recent production history of major fields, shows the success of modern conservation and gives the various sections of the law under which the commission rulings are made. A color map of the state's principal oil fields accompanies the present article

The commission requires a minimum of reports from the operating companies concerning the drilling, production and abandonment of properties. Tenders or certificates of clearance on crude oil, which the Petroleum Conservation Division of the Department of the Interior kindly helped us institute, are required from pipe lines and refineries.

Held Public Hearings

Late each month, as a rule, a public hearing is held to determine production quotas for the following month. When these notices are published it is stated therein that "the commission desires to hear evidence for the purpose of determining the optimum daily rate of production of oil and gas from the various fields and pools operating under production-control regulation." One way of interpreting this optimum rate of flow concept would be to say "the greatest production of oil with the minimum quantity of gas for each pound drop in bottom-hole pressure, and such production distributed in a reasonable, practical manner so that avoidable drainage is prevented and equity approached as nearly as possible." If no pressure is lost, so much the better.

The success with which this concept has been carried out is reflected in the following tabulations as a comparison between the years 1938 and 1939, and the improvement of producing efficiency in the latter year.

Field or pool—	Spacing pattern (acres)	Months operated	Wells drilled	Acreage added	B.hp. change*	Bbl. produced	Average ratio†	Bbl. recovered per lb. loss
1938								
Atlanta	40	1	1	40	0	1,938	837	(‡)
Buckner	40	12	8	320	—240	330,001	350	1,375
Magnolia	40	10	9	360	—75	128,323	750	1,711
Schuler-Jones	20	12	111	2,220	—690	5,226,398	750	7,574
Schuler-Reynolds	40	12	9	360	—75	428,782	6,335	5,717
Village	40	7	4	160	—40	66,146	5,571	1,654
1939								
Atlanta	40	12	4	160	—22	88,202	1,330	4,009
Buckner	40	12	10	400	—130	663,189	210	5,101
Magnolia	40	12	73	2,880	—40	3,718,384	912	92,952
Schuler-Jones	20	12	23	460	—460	5,206,184	1,125	11,318
Schuler-Reynolds	40	12	6	240	+5	890,548	850	(‡)
Village	40	12	7	280	+5	303,344	9,000	(‡)
Big Creek	40	1	1	40	(gas distillate—shut in)			
Dorcheat	40	4	3	120	—27	42,823	4,000	1,586
Lewisville	20	8	12	400	—215	144,603	650	673

COMPARISON AND RESERVOIR TYPE

Atlanta	Water drive	Only 1 month to compare	.....	.....	.....	.....
Buckner	Water drive	.....	D	140	U	3,726
Magnolia	Water drive	.....	U	162	U	91,241
Schuler-Jones	Gas drive	.....	U	375	U	3,744
Schuler-Reynolds	Combination	.....	D	5,485		(‡)
Village	Combination	.....	U	3,429		(‡)
Big Creek	May be gas field	New field	.....	.....	.....	.....
Dorcheat	May be gas distillate	New field	.....	.....	.....	.....
Lewisville	Combination	New field	.....	.....	.....	.....

*Bottom-hole pressure change in lb. per sq. in.
†Gas produced per barrel of oil in cubic feet.
‡Gain in pressure.
U—Increased. D—Decreased.

Early each month, our engineers go into these fields and pools with their bottom-hole pressure and gas-oil ratio units and determine the condition of these reservoirs under the prevailing production quotas. All of the wells are closed to production while the engineers test the necesary key wells. The operators usually have their witnesses present in a cooperative sense.

The public is then advised of their findings, by publication, and the comparative findings of the previous month and months in order that there will be sufficient time prior to the hearing for all to be advised of the physical conditions existing, and in order that the commission may hear them. (This same informations is given in Charts 4, 5, 6, 7, and 8.)

At the public hearing for the determination of the production quota for the ensuing month, large charts are displayed containing progressively the bottom-hole pressure, gas-oil ratio, and production rates by months. There is one for each pool and visual comparison can be made of monthly recovery efficiency as well as cumulative, the difference in the recovery of oil and gas for each pound in bottom-hole pressure as between pools being reconciled by the published findings of the engineers which contained the difference in depth, area, type ratio, type structure, drilling, etc.

Believing that it would be of interest, five of these charts reduced in size are reproduced under the factual data of the field they represent.

These five charts represent three types of pools and as they are spoken of in the industry, Charts 4 and 5, water drive; Chart 6, gas drive, and Charts 7 and 8, combination drive. There are three lines on each chart, the top being the average bottom-hole pressure, the second the daily rate of production of oil, and the bottom line represents the volume of gas produced with each barrel of oil, or the gas-oil ratio.

While space will not permit the discussion of all the charts, I will discuss the water-drive pool (Chart 5) in which the energy is supplied by water, which underlies the oil and presses upward against it. That is, instead of the remaining oil and gas having to expand to fill all the space left by oil and gas produced, the water moves in, flushes the sand, fills the vacated space and retards the decline in bottom-hole pressure—if the production rate is not too great.

Bottom-Hole Pressure Important

The gas-drive pool (Chart 6) is one that has no effective supply of water, and therefore, cannot derive the beneficial effects from the water that underlies the oil. Such pools are also called "closed reservoirs." The expansive energy of the oil and gas, both the gas dissolved in the oil and the free gas above the oil in the gas cap, serves as a lifting agent. Bottom-hole pressure is very important in a pool of this type, in that it must be carefully used since there is no effective water drive to replace any pressure lost. (Pressure could be maintained by returning the produced gas if that were economically feasible.) If too much gas is produced from the so-called gas cap, and the bottom-hole presure declines as a result, the oil will become inert, sticky, and will cling to the sand. This will result in the ultimate recovery being lowered for the pool as a whole.

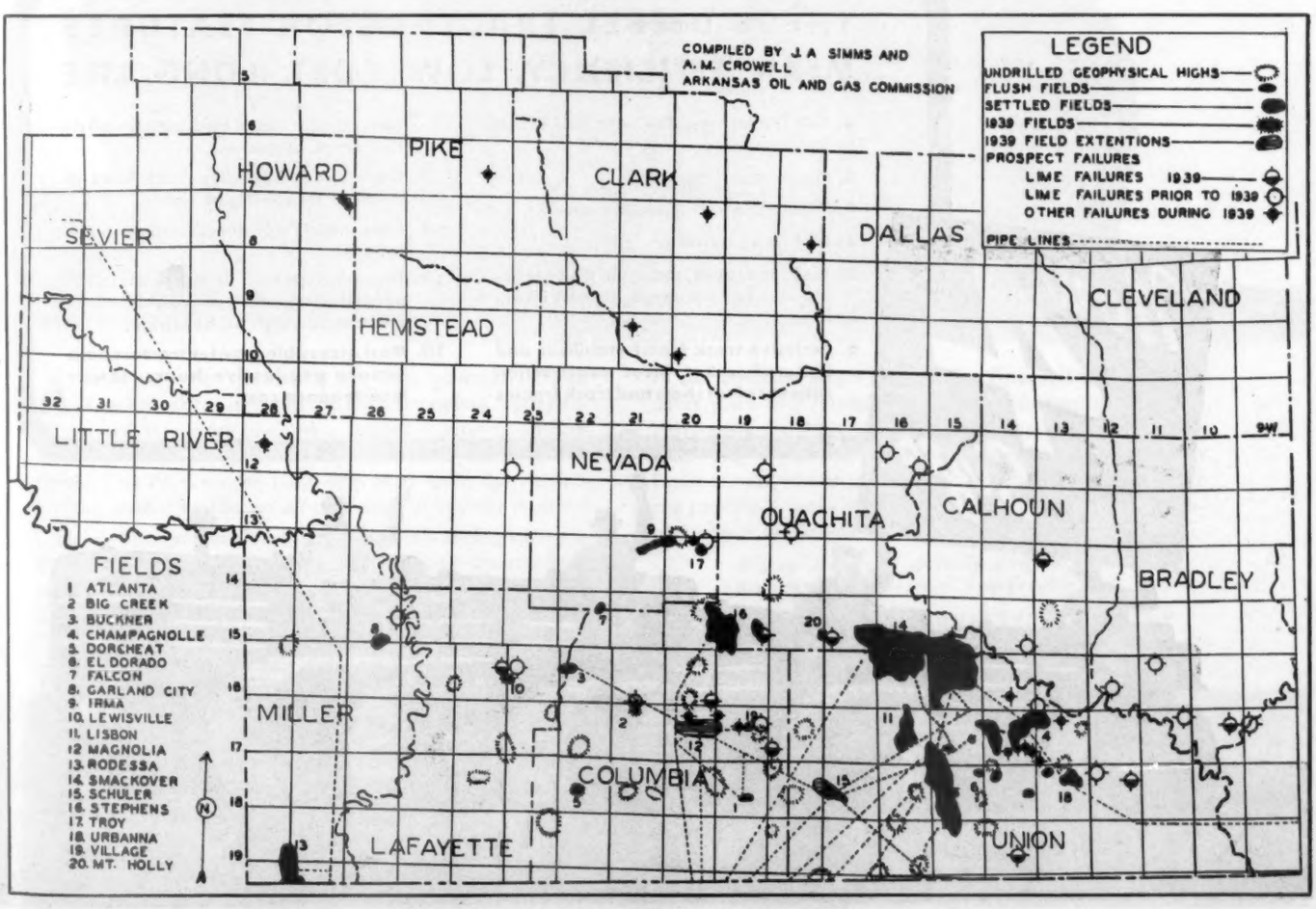
The combination-drive pools (Charts 7 and 8) simply have a combination of the characteristics of a gas-drive pool and a water-drive pool. Chart 7 depicts the Reynolds-lime pool of the Schuler field, which is primarily a water-drive pool but during its earily life large quantities of gas were removed, as can be seen in that portion of the chart devoted to the period prior to July 1938, and an extraordinarily large gas cap was formed.

The Village pool, as depicted by Chart 8, has both an effective water drive and gas drive. The pool has had inherently high gas-oil ratios since its discovery and this fact explains the present method of regulation, which is volumetric displacement.

While I may not have gone into detail in describing the pools those charts represent, there is one point that I believe is most evident, and that is the primary importance of bottom-hole pressure and the maintenance of bottom-hole pressure.

The charts illustrate another fact also. The commission, through its engineering staff, does keep informed at all times concerning the physical condition of all the oil pools under its supervision through appropriate tests. So last summer when an opportunity presented itself at a time when the flush fields could be closed to production with little expense to the operators, the commission decided to fully investigate these fields. Accordingly, we made this investigation beginning August 17, 1939, and you will find upon inspection the notation on each of the five charts "Field shut in."

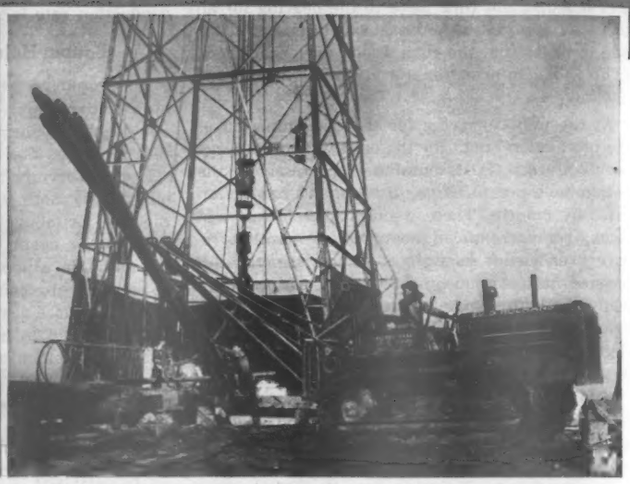
The shutdown of all of the pools operating under production regulation proved to be very beneficial not only from a pressure-maintenance standpoint, but from the information gained as to type drive in each pool and the drive's effectiveness, as the following tabulation will illustrate:



Map of 16 southwestern Arkansas counties, showing oil fields, extensions and prospects

New DIESEL

Like all TracTracTors, the new TD-14 is mighty sweet to handle. It has a 4-cylinder, *full* Diesel engine which operates under full governor control at any speed from 450 to 1,300 r.p.m. Six forward and two reverse speeds provide close selection of traveling speed to load without loss in engine r.p.m. or maximum horsepower capacity.



The powerful 6-cylinder TD-18 immediately made its mark in the heavy-crawler field when it arrived on the market a year ago. As the forerunner of the completely new Diesel TracTracTor line, the TD-18 has proved to users the value of International *full* Diesel power and crawler-tractor design. It is perfectly coordinated to the last detail for more work, lower costs, bigger profits.

THESE DIESEL TRACTRACTOR FEATURES MEAN EFFICIENCY, LOW COST, LONG LIFE

1. Full Diesel engines with full Diesel fuel economy.
2. Quick, easy starting.
3. Wide range of traveling speeds.
4. Fast gear shifting.
5. Easy-operated, multiple-disk steering clutches mounted on ball bearings.
6. Exclusive track frame stabilizer and ball-and-socket pivot construction relieves pivot shaft and track frames of leverage loads and assures positive track alignment.
7. Track shoes keyed to track links to prevent loosening of shoes.
8. Long-lived, quintuple-sealed track rollers.
9. Tocco-hardened crankshaft with precision-type replaceable main and connecting rod bearings.
10. Most accessible crawler tractors built —more productive hours, lower maintenance cost.

TracTracTors *by* INTERNATIONAL HARVESTER

A YEAR AGO we announced the big, powerful TD-18 TracTracTor, a new top for Diesel crawlers. Today International Harvester presents a rugged quartet of streamlined crawlers—TD-18, TD-14, TD-9 and TD-6. FOUR *Diesel TracTracTors for 1940*—big news from the world's leading tractor builder to *all* operators of crawler tractors!

Here's the complete line-up to look over—the big fellow at the right, already a popular favorite in the heavy-crawler field; his little brother at the far left; and the step-ups in between. There's not an ounce of lazy horsepower in any of them! They're ready to tackle their weight in wildcats—each one is ready to lick the crawler-power problems in his range!

In this complete series of TracTracTors, INTERNATIONAL offers you a new standard of Diesel performance and economy—perfectly designed balanced power in capacities to meet every demand of crawler-tractor users. Standardize on International and enjoy all the advantages only Harvester can provide. Get the full story from any International industrial power dealer or Company branch, or write us.

A great variety of specially designed allied equipment available for all TracTracTor sizes.

INTERNATIONAL HARVESTER COMPANY
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180 North Michigan Avenue Chicago, Illinois

RESULTS OF AUGUST SHUTDOWN

(Taken from Charts 4, 5, 6, 7, and 8)

Field or pool—	Dates From	Dates To	Gas-oil ratio* Before	Gas-oil ratio* After	B.h. pressure† Before	B.h. pressure† After	Days closed	Ratio decrease*	Pressure increase‡
Atlanta	8-17	8-27	2,058	1,800	3,775	3,815	10	258	40
Buckner	8-17	9-1	205	200	2,880	2,943	15	5	63
Magnolia	8-17	9-1	885	800	3,330	3,457	15	85	127
Schuler-Jones	8-17	9-4	1,220	1,200	2,380	2,462	‡18	20	82
Schuler-Reynolds	8-17	8-27	850	825	3,360	3,470	10	25	110
Village	8-17	9-1	6,760	6,500	3,220	3,355	15	260	135

*Cubic feet of gas per barrel of oil produced.
†Bottom-hole pressure in pounds per square inch.
‡Partially open first 4 days due to litigation.

Not only are our reserves being increased, but the expected ultimate recovery of these reserves is being increased by the application of sound engineering principles—principles that are easily understood.

Each and every pool is treated as a separate unit, and the particular producing characteristics of that unit or particular wells within the unit determine the production quota for it. We do not feel that any two pools can be so identical that the same yardstick of efficiency and effectiveness of so many barrels a day will apply alike.

As you can see, all of the fields benefited, and it has been recommended to the commission by some of the operating companies that we attempt to work out some system whereby shut-in periods could be arranged at regular intervals.

We have taken into consideration bottom-hole pressure in allocating production to the wells and leases in the pools operating under production control regulation—given it the same consideration as acreage in our proration formulas, which is *acreage times pressure* in all pools with the exception of the Village pool, and that pool is prorated under the basis of *volumetric displacement* due to a wide variance in operating gas-oil ratios.

The commission changed its proration formula with the passage of Act 105 in order to fulfill the provisions of the act. Prior to that time, under the operators' agreement, the formula had been 50 per cent acreage plus 50 per cent pressure. There is quite a difference, as can be seen by this example:

The *plus* formula, if the best well in the pool were allowed 100 bbl. and had 40 acres and 2,000 lb. pressure, any change would result in this ratio:

20 acres and 2,000 lb. = 75 bbl.
40 acres and 1,000 lb. = 75 bbl.

The *times* formula, if the best well in the pool were allowed 100 bbl. and had 40 acres and 2,000 lb. pressure, any change would result in this ratio:

20 acres and 2,000 lb. = 50 bbl.
40 acres and 1,000 lb. = 50 bbl.

A specified gas-oil ratio limit is set, usually 2,000 cu. ft. to the barrel, and the allowable reduced in proportion to the gas limit so fixed in the acreage-times-pressure formula. This gas limit is set in all fields.

Methods Are Reasonable

The volumetric formula simply allows each well to void so much space in the reservoir, whether it be the production of oil or gas or both, in proportion to acreage assigned and pressure observed.

It is the unanimous opinion of the commission, after many hearings on the subject, that the above methods are reasonable and practical ones—and that they have prevented and are preventing reasonably avoidable drainage between producing tracts, preventing the drilling of unnecessary wells, and approaching as nearly as possible, equity in production.

Overproduction is being prevented in the wasteful building up of aboveground stocks of oil. Stocks on hand have been reduced 30.5 per cent since the discovery of our new reserves.

STOCKS OF CRUDE PETROLEUM ON HAND IN ARKANSAS

	Bbl.
As of October 1, 1937*	2,711,000
As of October 1, 1939†	1,884,000
Reduction in stocks (30.5% of 1937 stocks)	827,000

*Bureau of Mines Yearbook Review, 1937.
†Bureau of Mines Monthly Statement, Nov. 8, 1939.

DORCHEAT FIELD—LIME POOL

Location: Township 18s, Range 22w, Columbia County. Geology: Anticlinal fold; 8,600 ft. subsea; oolitic limestone. Discovered: Atlantic Refining Co.'s No. 1 Pinewood Lumber Co., August 28, 1939. Well spacing: 40 acres. Engineering data: Gas-oil contact, 8,650 ft. subsea (?); water, 8,670 ft. subsea; effective section 45 ft.; porosity, 13 per cent; connate water (?); shrinkage (?); recovery, (?); original reserves, 4,170,000 bbl.; producing acres, 120; water drive. Operation data: Gas-oil ratio, original 1,152, present 8,800; gravity, 56.6° A.P.I.; bottom-hole pressure, original 4,243, present 4,210; total drop, 33; oil production, 42,823 bbl.; gas production, 171,292,000 cu. ft. Recovery data: Per-pound drop in bottom-hole pressure, oil 1,298 bbl., gas 519,000 cu ft.

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
September 1939	1	4,237	—6	3,634	1,152	606
October	1	4,230	—7	8,875	3,500	1,268
November	1	4,220	—10	11,714	5,000	1,171
December	3	4,210	—10	*18,600	8,800	1,860

*Indicates allowable; rest reported production.

ATLANTA FIELD—LIME POOL

Location: Township 18s, Range 19w, Columbia County. Geology: Anticlinal fold, 7,900 ft. subsea; oolitic limestone; discovered by Tide Water Associated Oil Co.'s No. 1 Beene, December 19, 1938. Well spacing: 40 acres. Engineering data: Gas-oil contact, (?); water, 8,000 ft. subsea; effective section, 30 ft.; porosity 14.4 per cent; connate water, (?); shrinkage, (?); recovery, 50 per cent; original reserves, 2,200,000 bbl.; producing acres, 200; water drive. Operation data: Gas-oil ratio, original 837, present 1,200; gravity, 44° A.P.I.; bottom-hole pressure, original 3,821, present 3,790; total drop, 31; oil production, 90,140 bbl.; gas production, 135,987,000 cu. ft. Recovery data: Per pound drop in bottom-hole pressure, oil 2,908 bbl., gas 4,387,000 cu. ft.

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
December 1938	1	3,821	0	1,938	837	
January 1939	1	3,812	—9	97	837	10
February	1	3,800	—12	0	....	....
March	1	3,790	—10	0	....	....
April	1	3,780	—10	6,002	1,608	600
May	2	3,770	—10	8,302	1,815	830
June	2	3,760	—10	7,816	1,886	782
July	3	3,765	+5	7,058	1,447	(*)
August	3	3,775	+10	7,298	2,058	(*)
September	3	3,785	+10	10,361	1,800	(*)
October	3	3,795	+10	10,115	1,386	(*)
November	4	3,810	+15	10,613	1,167	(*)
December	5	3,790	—20	†20,550	1,200	1,028

*Indicates no change or gain in pressure. †Indicates allowable; rest reported production.
Field closed in from August 17 to 27.

LEWISVILLE FIELD—LOWER GLEN ROSE AND TOKIO

Location: Township 16s, Range 23 and 24w. Geology: Closure against 45° angle fault; lower Glen Rose; discovered by East Texas Refining Co.'s No. A-1 Patten estate April 25, 1939; oolitic limestone; saturated thickness 10 ft.; 3,075 ft. subsea. Engineering data: Gas-oil contact 3,075 ft. subsea; water, 3,230 ft. subsea; porosity, 15 per cent; connate water, (?); shrinkage, (?); water drive; productive area, 320 acres; ultimate development, 16 wells; gravity, 37 to 52° A.P.I.; original reserves, 1,000,000 bbl. Operation data: Original gas-oil ratio, 500; present, 660; original bottom-hole pressure 1,365, present 1,150 (January 1, 1940); total drop, 215; oil production, 144,603; gas production, 95,858,000 cu. ft. Recovery data: Per pound drop in bottom-hole pressure, oil, 673 bbl., gas 446,000 cu. ft. (January 1, 1940). Tokio sand: Productive area not determined; 2 wells completed; gravity oil, 17° A.P.I.; physical characteristics of sand unknown; water drive; demand for oil has shown development.

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
May 1939	2	1,365	0	2,027	500	(*)
June	2	1,335	—30	3,660	508	122
July	5	1,295	—40	14,149	510	354
August	8	1,270	—25	27,719	575	1,109
September	9	1,245	—25	33,084	637	1,323
October	10	1,225	—20	21,133	645	1,057
November	12	1,200	—25	21,069	650	843
December	12	1,150	—50	†21,762	660	435

*Indicates no change or gain in pressure. †Indicates allowable; rest reported production.

BUCKNER FIELD—LIME POOL

Location: Township 16s, Range 22 and 23w, Columbia and Fayette counties. Geology: Anticlinal fold, 6,900 ft. subsea; oolitic limestone; discovered by Standard Oil Co.'s No. 1 J. P. McKean, November 31, 1937. Well spacing: 40 acres. Engineering data: All gas in solution; water, 7,010 subsea; effective section, 30 ft.; porosity, 20 per cent; connate water, 20 per cent; shrinkage, 30 per cent; recovery, 40 per cent; original reserves, 7,000,000 bbl.; producing acres, 760; water drive, (not very effective). Operation data: Gas-oil ratio, original 375, present 200; gravity, 32.5° A.P.I.; bottom-hole pressure, original 3,195, present 2,830 (January 1, 1940); total drop, 365; oil production, 1,014,678; gas production, 235,708,000 cu. ft. Recovery data: Per pound drop in bottom-hole pressure, oil 2,780 bbl.; gas 646,000 cu. ft. (January 1, 1940).

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
October 1937	1	3,195	0	1,697	375	(*)
November	1	3,195	0	9,636	375	(*)
December	1	3,200	+5	10,155	375	(*)
January 1938	1	3,200	0	12,001	375	(*)
February	1	3,200	0	10,400	375	(*)
March	1	3,200	0	5,683	375	(*)
April	2	3,198	—2	14,133	375	7,067

(Continued on Next Page)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure-drop
May	4	3,161	—37	19,014	375	514
June	5	3,120	—41	26,708	350	651
July	5	3,120	0	32,278	325	(*)
August	7	3,110	—10	39,289	300	3,929
September	8	3,060	—50	42,001	244	840
October	9	2,980	—80	44,794	245	560
November	9	2,960	—20	41,942	216	2,097
December	9	2,960	0	41,752	211	(*)
January 1939	9	2,930	—30	41,516	197	1,384
February	10	2,920	—10	39,637	184	3,964
March	10	2,907	—13	48,583	184	3,737
April	11	2,890	—17	49,954	218	2,938
May	12	2,870	—20	51,161	215	2,558
June	13	2,860	—10	54,805	210	5,481
July	14	2,870	+10	59,443	205	(*)
August	15	2,943	+73	31,906	205	(*)
September	16	2,900	—43	66,532	200	1,547
October	17	2,870	—30	70,421	200	2,347
November	17	2,850	—20	71,446	200	3,572
December	19	2,830	—20	77,785	200	3,889

*Indicates no change or gain in pressure. †Indicates allowable; rest reported production. Field closed in from August 17 to September 1.

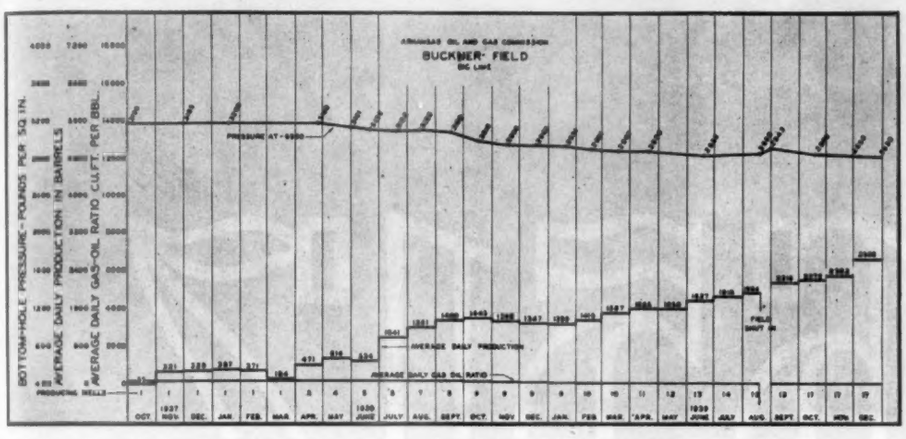
ARKANSAS OIL AND GAS COMMISSION
BUCKNER FIELD
BIG LIME
PRESSURE AT -6950
AVERAGE DAILY PRODUCTION
AVERAGE DAILY GAS OIL RATIO
FIELD SHUT IN
BOTTOM-HOLE PRESSURE - POUNDS PER SQ. IN.
AVERAGE DAILY PRODUCTION IN BARRELS
AVERAGE DAILY GAS-OIL RATIO C.U.FT. PER BBL.
PRODUCING WELLS

Chart 4

MAGNOLIA FIELD—BIG LIME

Location: Township 17s, Range 19 and 20w, Columbia County. Geology: Anticlinal fold, 7,100 ft. subsea; oolitic limestone; discovered by Kerr-Lynn Oil Co.'s No. 1 Barnett, March 5, 1938. Well spacing, 40 acres. Engineering data: Gas-oil contact, 7,138 subsea; water, 7,321 subsea; effective section, 125 ft.; porosity, 18.5 per cent; connate water, 20 per cent; shrinkage, 30 per cent; recovery, 60 per cent; original reserves, 180,000,000 bbl.; producing acres, 3,249; water drive. Operation data: Gas-oil ratio, original 700, present 875; gravity, 38° A.P.I.; bottom-hole pressure, original 3,465, present 3,350 (January 1, 1940); total drop, 115; oil production, 3,846,707 bbl.; gas production, 3,402,304,000 cu. ft. Recovery data: Per pound drop in bottom-hole pressure, oil 33,450 bbl., gas 29,585,000 cu. ft. (January 1, 1940).

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
March 1938	1	3,445	—20	700	700	35
April	1	3,445	0	8,604	710	(*)
May	1	3,440	—5	7,590	720	1,518
June	1	3,426	—14	5,507	715	393
July	1	3,400	—26	8,251	715	317
August	1	3,380	—20	9,263	710	463
September	2	3,350	—30	7,614	700	253
October	2	3,280	—70	17,659	750	252
November	4	3,320	+40	26,245	800	(*)
December	10	3,390	+70	36,890	900	(*)
January 1939	12	3,430	+40	60,724	1,100	(*)
February	15	3,385	—45	85,952	1,100	1,910
March	18	3,403	+18	116,093	989	(*)
April	21	3,410	+7	104,251	841	(*)
May	29	3,400	—10	202,797	893	20,280
June	35	3,370	—30	303,208	891	10,107
July	46	3,385	+15	404,578	890	(*)

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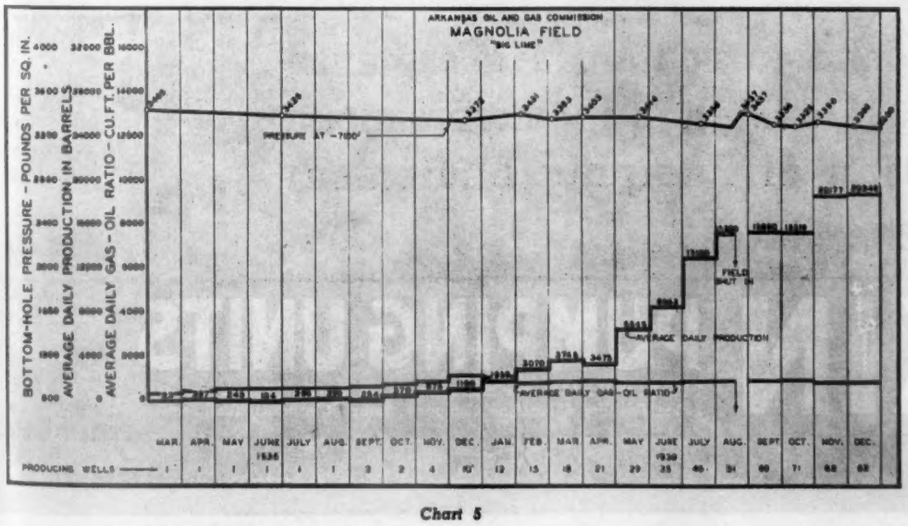

ARKANSAS OIL AND GAS COMMISSION
MAGNOLIA FIELD
"BIG LIME"
PRESSURE AT -7100'
AVERAGE DAILY PRODUCTION
AVERAGE DAILY GAS-OIL RATIO
FIELD SHUT IN
BOTTOM-HOLE PRESSURE - POUNDS PER SQ. IN.
AVERAGE DAILY PRODUCTION IN BARRELS
AVERAGE DAILY GAS-OIL RATIO - C.U.FT. PER BBL.
PRODUCING WELLS

Chart 5

Sections of Conservation Act Affecting Administration

Section 14.[1] (a) Whether or not the total production from a pool be limited or prorated, no rule, regulation or order of the commission shall be such in terms or effect (1) that it shall be necessary at any time for the producer from, or the owner of, a tract of land in the pool, in order that he may obtain such tract's just and equitable share of the production of such pool, as such share is set forth in this section, to drill and operate any well or wells on such tract in addition to such well or wells as can without waste produce such share, or (2) as to occasion net drainage from a tract unless there be drilled and operated upon such tract a well or wells in addition to such well or wells thereon as can without waste produce such tract's just and equitable share, as set forth in this section, of the production of such pool.

(b) For the prevention of waste and to avoid the augmenting and accumulation of risks arising from the drilling of an excessive number of wells, the commission shall, after a hearing, establish a drilling unit or units for each pool, except in those pools which, prior to the effective date of this act, have been developed to an extent and where conditions are such that it would be impracticable or unreasonable to use a drilling unit at the present stage of development. A drilling unit, as contemplated herein, means the maximum area which may be efficiently and economically drained by one well, and such unit shall constitute a developed unit as long as a well is located thereon which is capable of producing oil or gas in paying quantities.

It is provided, however, that the commission shall have no authority to fix a drilling unit as a basis for the development or operation of any pool capable of producing oil, in excess of 40 acres.

(c) Each well permitted to be drilled upon any drilling unit shall be drilled approximately in the center thereof, with such exception as may be reasonably necessary where it is shown, after notice and upon hearing, and the commission finds, that the unit is partly outside the pool or, for some other reason, a well approximately in the center of the unit would be nonproductive or where topographical conditions are such as to make the drilling approximately in the center of the unit unduly burdensome. Whenever an exception is granted, the commission shall take such action as will offset any advantage which the person securing the exception may have over other producers by reason of the drilling of the well as an exception, and so that drainage from developed units to the tract with respect to which the exception is granted will be prevented or minimized and the producer of the well drilled as an exception will be allowed to produce no more than his just and equitable share of the oil and gas in the pool, as such share is set forth in this section.

(d) Subject to the reasonable requirements for prevention of waste, a producer's just and equitable share of the oil and gas in the pool (also sometimes referred to as a tract's just and equitable share) is that part of the authorized production for the pool (whether it be the total which could be produced without any restriction on the amount of production, or whether it be an amount less than that which the pool could produce if no restriction on amount were imposed) which is substantially in the proportion that the quantity of recoverable oil and gas in the developed area of his tract in the pool bears to the recoverable oil and gas in the total developed area of the pool, in so far as these amounts can be practically ascertained; and to that end, the rules, regulations, permits and orders of the commission shall be such as will prevent or minimize reasonably avoidable net drainage from each developed unit (that is, drainage which is not equalized by counter drainage), and will give to each producer the opportunity to use his just and equitable share of the reservoir energy.

Section 15.[2] (a) When two or more separately owned tracts of land are embraced within an established drilling unit, the owners thereof may validly agree to integrate their interests and to develop their lands as a drilling unit. Where, however, such owners have not agreed to integrate their interests, the commission shall, for the prevention of waste or to avoid the drilling of unnecessary wells, require such owners to do so and to develop their lands as a drilling unit. All orders requiring such integration shall be made after notice and hearing, and shall be upon terms and conditions that are just and reasonable, and will afford to

6517
Lufkin
PUMPING UNITS
WORKING
LUFKIN PUMPING UNITS
LUFKIN UNITS are manufactured in Lufkin, Texas, by the Lufkin Foundry & Machine Company. Branches in principal oil centers

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure-drop
August	51	3,437	+52	245,644	885	(*)
September	60	3,325	—112	481,189	880	4,296
October	73	3,380	+55	481,008	875	(*)
November	77	3,370	—10	605,314	850	60,531
December	82	3,350	—20	†627,626	875	31,381

*Indicates no change or gain in pressure. †Indicates allowable; rest reported production.
Field closed in August 17 to September 1.

SCHULER FIELD—JONES POOL

Location: Township 18s, Range 17 and 18w, Union County. Geology: Anticlinal fold, 7,300 ft. subsea; tight sandstone; discovered by E. M. Jones' No. 1 Marine, September 17, 1937. Well spacing: 20 acres. Engineering data: Gas-oil contact, 7,280 ft. subsea; water, 7,380 ft. subsea; effective section, 50 ft.; porosity, 17.6 per cent; connate water, 15 per cent; shrinkage, 34.8 per cent; recovery, 35 per cent; original reserves, 40,000,000 bbl.; producing acres, 2,830; gas drive (?). Operation data: Gas-oil ratio, original 500, present 1,275; gravity, 34° A.P.I.; bottom-hole pressure, original 3,520, present 2,310 (January 1, 1940); total drop, 1,210, oil production, 10,778,149 bbl.; gas production, 10,905,729,000 cu. ft. Recovery data: Per pound drop in bottom-hole pressure, oil 8,908 bbl., gas 9,013,000 cu. ft. (January 1, 1940).

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
September 1937	2	3,520	0	28,553	500	(*)
October	2	3,500	—20	68,051	500	3,402
November	2	3,489	—11	74,268	500	6,752
December	6	3,460	—29	174,695	500	6,024
January 1938	9	3,430	—30	130,230	500	4,341
February	14	3,412	—18	329,278	500	18,293
March	27	3,360	—52	436,988	583	8,404
April	35	3,260	—100	500,470	999	5,005
May	48	3,200	—60	199,066	750	3,318
June	52	3,140	—60	280,218	871	4,670
July	62	3,120	—20	596,282	950	29,814
August	70	3,020	—100	613,799	876	6,138
September	83	2,890	—130	658,524	950	5,066
October	95	2,870	—20	562,748	1,155	28,137
November	108	2,830	—40	455,126	1,099	11,378
December	115	2,770	—60	463,670	1,028	7,728
January 1939	118	2,720	—50	457,837	1,016	9,157
February	122	2,670	—50	426,035	1,102	8,521
March	124	2,635	—35	457,124	1,037	13,061
April	126	2,600	—35	447,030	1,039	12,772
May	129	2,540	—60	467,323	1,118	7,789
June	136	2,475	—65	448,585	1,118	6,901
July	137	2,440	—35	475,434	1,205	13,584
August	138	2,450	+10	245,318	1,220	(*)
September	139	2,410	—40	398,528	1,230	9,963
October	141	2,380	—30	462,911	1,240	15,430
November	141	2,344	—36	452,982	1,250	12,583
December	141	2,310	—34	†467,077	1,275	13,738

*Indicates no change or gain in pressure. †Indicates allowable; rest reported production.
Field closed in from August 17 to September 4.

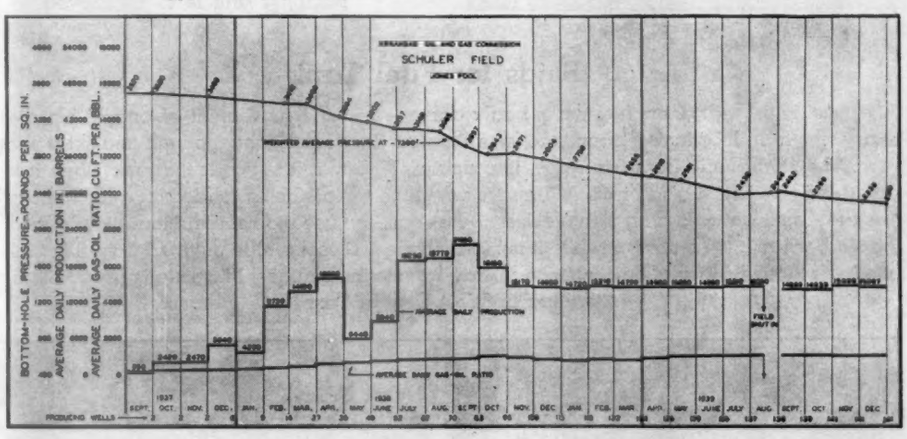


Chart 6

SCHULER FIELD—LIME POOL

Locaton: Township 18s, Range 17 and 18w, Union County. Geology: Anticlinal fold, 7,600 ft. subsea; oolitic limestone; discovered by Lion Oil Refining Co.'s No. A-1 Edna Morgan, October 22, 1937. Well spacing: 40 acres. Engineering data: Gas-oil 7,394 ft. subsea; water, 7,420 ft. subsea; effective section, 35 ft.; porosity, 20 per cent; connate water, 20 per cent; shrinkage, 30 per cent; recovery, 60 per cent; original reserves, 7,900,000 bbl.; producing acres, 646; combination drive. Operation data: Gas-oil ratio,‡ original 35,000, present 900; gravity, 38° A.P.I.; bottom-hole pressure, original 3,550, current 3,420 (January 1, 1940); total drop, 130; oil production, 1,353,155 bbl; gas production, 3,725,508,000 cu. ft. Recovery data: Per pound drop in bottom-hole pressure, oil 10,409 bbl., gas 28,658,000 cu. ft. (January 1, 1940).

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
October 1937	1	3,530	—20	1,922	55,000	96
November	1	3,510	—20	11,970	28,750	598
December	1	3,490	—20	19,933	25,600	997
January 1938	1	3,480	—10	16,932	24,500	1,693
February	1	3,470	—10	12,722	20,300	1,272
March	2	3,450	—20	51,720	8,100	2,586
April	2	3,440	—10	41,069	6,500	4,107
May	3	3,430	—10	29,842	8,600	2,984
June	4	3,410	—20	30,384	3,200	1,519
July	5	3,410	0	26,279	700	(*)
August	5	3,420	+10	36,584	750	(*)
September	5	3,310	—110	44,304	800	403
October	5	3,360	+50	39,677	931	(*)
November	6	3,400	+40	34,212	871	(*)
December	10	3,415	+15	65,057	770	(*)
January 1939	12	3,440	+25	72,735	782	(*)
February	14	3,410	—30	88,244	710	2,941
March	14	3,350	—60	97,658	709	1,628
April	14	3,395	+45	66,124	825	(*)
May	14	3,420	+25	73,385	870	(*)
June	16	3,400	—20	75,289	855	3,764

(Continued on Page 105)

the owner of each tract the opportunity to recover or receive his just and equitable share of the oil and gas in the pool without unnecessary expense, and will prevent or minimize reasonably avoidable drainage from each developed unit which is not equalized by counter drainage. The portion of the production allocated to the owner of each tract included in a drilling unit formed by an integration order shall, when produced, be considered as if it had been produced from such tract by a well drilled thereon. In the event such integration is required, the operator designated by the commission to develop and operate the integrated unit shall have the right to charge to each other interested owner the actual expenditures required for such purpose not in excess of what are reasonable, including a reasonable charge for supervision, and the operator shall have the right to receive the first production from the well drilled by him thereon, which otherwise would be delivered or paid to the other parties jointly interested in the drilling of the well, so that the amount due by each of them for his share of the expense of drilling, equipping and operation of the well may be paid to the operator of the well out of production, with the value of the production calculated at the market price in the field at the time such production is received by the operator or placed to his credit. In the event of any dispute relative to such costs, the commission shall determine the proper costs.

(*b*) Should the owners of separate tracts embraced within a drilling unit fail to agree upon the integration of the tracts and the drilling of a well on the unit, and should it be established that the commission is without authority to require integration as provided for in subdivision *a* of this section, then, subject to all other applicable provisions of this act, the owner of each tract embraced within the drilling unit may drill on his tract but the allowable production from such tract shall be such proportion of the allowable for the full drilling unit as the area of such separately owned tract bears to the full drilling unit.

(*c*) Agreements made in the interest of conservation of oil or gas or both, or for the prevention of waste, between and among owners or operators, or both, owning separate holdings in the same oil or gas pool, or in any area that appears from geological or other data to be underlaid by a common accumulation of oil or gas, or both, or between and among such owners or operators, or both, and royalty owners therein, of the pool or area, or any part thereof, as a unit for establishing and carrying out a plan for the cooperative development and operation thereof, when such agreements are approved by the commission, are hereby authorized and shall not be held or construed to violate any of the statutes of this state relating to trusts, monopolies, or contracts and combinations in restraint of trade.

Section 16. (*a*) Whenever the commission limits the total amount of oil or gas which may be produced in this state, the limit so fixed shall not be less than the aggregate allowables fixed for each separate pool in this state for the prevention of waste in accordance with the foregoing definition of waste, plus the production from unrestricted pools, and it shall allocate or distribute the allowable so fixed among the separate pools. Such allocation or distribution among the pools of the state shall be made on a reasonable basis, giving to each pool with small wells of settled production, an allowable production which will not accelerate or encourage a general premature abandonment of the wells in the pool.

(*b*) Whenever the commission limits the total amount of oil or gas which may be produced in any pool in this state to an amount less than that amount which the pool could produce if no restriction were imposed (which limitation may be imposed either incidentally to, or without, a limitation of the total amount of oil or gas which may be produced in the state), the commission shall prorate or distribute the allowable production among the producers in the pool on a reasonable basis so as to prevent or minimize reasonably avoidable drainage from each developed unit which is not equalized by counter drainage, and so that each producer will have the opportunity to produce or receive his just and equitable share, as above set forth, subject to the reasonable requirements for the prevention of waste.

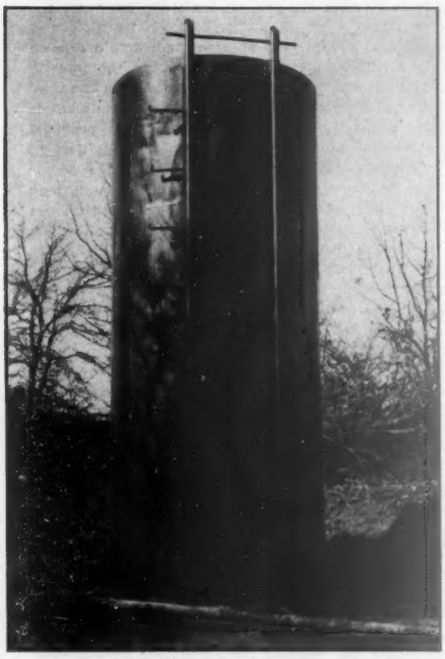
(*c*) After the effective date of any rule, regulation or order of the commission fixing the allowable production of oil or gas, or both, for any pool, no person shall produce from any well, lease or property more than the allowable production which is applicable, nor

(Continued on Page 105)

Operating Ideas

Portable Water Tank

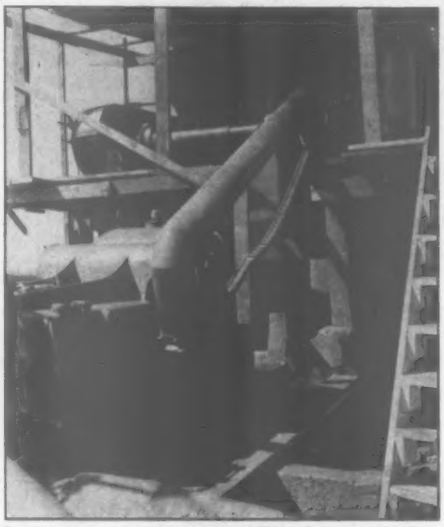
In order to insure an adequate supply of water when cementing operations are started, one drilling contractor in the Walnut Bend field of North Texas is using the portable tank shown here to provide for any emergency which might occur if the line bringing water to the well should fail. The tank is placed at a sufficient elevation so that water will gravitate to the well; it is filled with water before



cementing operations are started. Skids of 3-in. pipe are welded to the tank so that it may be turned over and skidded upon a truck in a horizontal position for movement to a new well location. One-inch steel rods welded to the skid serve as a ladder in order that the water height may be easily gaged.

Split Casing Is Used As Chain Guard

At one diesel-rotary rig in the Langlie area of Lea County, New Mexico, the chain guard shown in the accompanying photograph is being used as a safety measure on the mud-pump drive. The guard is made from 8-in. casing, split in half, with short sections of split casing being used to accomplish the right-angle turns. Steel supporting arms pass through sockets bolted onto the upper and lower ends to hold the guard clear of the chain drive. A hole is cut in the upper portion of the guard to allow the oil line to pass through in order that lubrication of the chain may be attained. The guard has proved to be very sturdy, yet light for easy handling.



Wheel-Mounted Water Pump

To facilitate easy movement of a pump used to supply water on a steam rig in the Vacuum field of New Mexico, one drilling contractor has mounted a small gasoline-engine-driven pump on wheels equipped with 4-in. by 16-in. rubber tires. The handles act as additional supports when in a working position as shown; they fold together when the pumping unit is to be moved.

Skids for Fuel Tank

After seeing several of his fuel tanks badly damaged in the movement of one of his diesel-rotary rigs from location to location, one drilling contractor designed the tank and skids shown here. The skid, made from 6-in. pipe, is constructed so that it supports the tank when it is in a vertical position. It also provides runners when the tank is being loaded on a truck. Lengths of strap iron, equipped with turnbuckles at the ends, are used to keep the tank tightly held on the skid, while it is vertical or while it is being loaded. Diesel fuel is pumped from this tank to another placed on a platform whence it gravitates to the engines. This skid is used with a rig drilling in West Central Texas.

Pipe-Line Work in Winter Weather

By PAUL REED

EXTENSIVE looping programs for increasing the capacity of certain major pipe lines have been pushed during the unusually severe weather of this winter. Directly above are views of operations of T. R. Jones, Dallas, Tex., in Kansas where his organization is building four loops of 22-in. and 24-in. pipe for the natural-gas transmission system of Panhandle Eastern Pipe Line Co. The other photographs were taken in Illinois on a day when the temperature was between 3° and 10° above zero; these show work where Williams Brothers Corp., Tulsa, is laying lines for six loops of 10-in. and 12-in. pipe for Texas-Empire Pipe Line Co. Operations in cold weather encounter difficulties. A tractor is to be seen sliding sideways down icy ground on a hillside. Bending of pipe requires special attention. Frozen backfill was shoved into the ditch in creek bottoms, some of it being in chunks more than 10 ft. long. Pipe is being laid by the stovepipe method. Instead of following the usual welding practice of using a 5/32-in. rod for the first bead, a 1/8-in. rod was used for this; 5/32-in. rod was used for the second bead; 3/16-in. rod was used to finish.

The entire Panhandle Eastern looping program calls for the laying of approximately 137 miles of pipe; by enlarging the line and increasing compressor capacity the company will be able to meet the rising demand for natural gas in its territory. The Texas-Empire looping program involves the laying of 80 miles of line and installation of pumping equipment to increase outlet for Illinois oil.

Progress in METALS

By W. L. NELSON

Developments in Welding Fittings

THE use of welding fittings is still a relatively new branch of the piping industry and hence, the preparation of specifications and the developments of facilities for handling such welding work is still taking place. A proposed standard for welding fittings is now in the course of preparation by the American Society of Mechanical Engineers under A.S.A. procedure. The angle of the bevel has finally been agreed upon in this new standard, as 37½° rather than the 45° angle that has been formerly used. The narrower groove so produced requires less weld metal and thus saves both time and material. The wall thickness of 2-in. or smaller pipe is relatively small and hence care must be taken in aligning the pipe and to avoid burning through. For these reasons, the use of socket-type fittings has increased widely for the smaller sizes of pipe during the last few years.

E. Hall Taylor discusses the above points and many others in the paper entitled "New Developments in Welding Fittings" which appeared in Mechanical Engineering, Page 370, May 1939. His discussion of improvements in the operations of identifying fittings, layouts, cutting and fitting, and lining up the pipe system is so aptly presented that it is quoted:

"In welding operations on piping, the first step is to insure the welding operator's getting the right fitting for the job. This may seem a small item, but shop men know how much time can be wasted looking up tickets and tags and checking dimension tables, trying to identify fittings from a stock pile full of various sizes and standards. Positive identification has been provided by stamping into the fitting its size and standard. Anyone without any knowledge of pipe standards can easily identify a fitting so stamped.

"Given the right fitting, the next problem is that of lining it up. Fittings are accurately beveled by machine so there is no problem in their joining evenly against the pipe end. The real time lost is in trying to determine the angle at which the fitting should be turned so as to fit the next run of piping. An angle cannot be measured without some reference point to start from, so the center line of the fitting must first be determined. This takes time and is not the easiest thing to do on an irregularly shaped object like an elbow. Hence has come the new development of marking center lines on elbows. These center lines are machined-marked for accuracy and with them as reference points it is easy to determine any angle at which it is wished to place the elbow.

"Lining up the welding fitting so that it is concentric with the pipe end is a problem on which many have worked. Various jigs and clamps have been made to do this; some of them are helpful and time can often be saved by using them, but such aids to lining up are not always available. A new fitting which lines itself up has now been developed which has a centering ring as part of the fitting. This centering ring, forged integral with the fitting, centers the elbow into the pipe, thus assuring accurate alignment instantly without any leveling or shimming. The ring will support the pipe end and hold it in readiness for welding, thus eliminating the need for extra supports. In addition to saving time in lining up, this ring has been found to improve penetration. The centering lip acts as a backing ring for the weld metal so that the joint can be welded all the way down to the bottom of the bevel without danger of burning through. This condition is much harder to obtain with the bevel only. The ring stops weld metal from flowing inside the pipe, thus preventing the formation of projections or icicles to obstruct the flow. The ring is an integral part of the elbow so that there is no danger of its coming loose in the line. It is so small and fits so snugly to the pipe that there is no measurable friction loss."

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Steel and Its Heat Treatment

Book Review: Bullens, D. K., "Steel and Its Heat Treatment," Vol. 2, 4th ed. (1939) John Wiley & Sons, New York—Price $5.00.

YOUR editor of Progress in Metals has long been searching for a book which would approach the subject of metals from the standpoint of uses and services rather than from that of the technical metallurgist, steel manufacturer or fabricator. In this particular respect, the above book is not entirely adequate but it is certainly the best that has come to my attention. Until this, the fourth edition, Mr. Bullens' book has been published in a single volume. Now, the "principles, processes, and fundamentals of control" have been confined to Volume 1—and Volume 2 which is being reviewed here, deals with "engineering and special purpose steels." From the standpoint of special purposes, however, the discussion does not disclose many specific applications, but rather, is content with general data on properties.

Aside from the special need for service information which is voiced above, this book is one of the most useful and practical books on steel manufacture. Having now presented a greatly enlarged edition and having segregated the information on engineering and special steels, the book should be of even greater value. The author and his assistants should be congratulated on a number of abbreviations and simplifications in presenting physical properties that make the book much easier to read and at the same time permits the presentation of masses of detailed data without becoming boresome.

No attempt is being made to review the book in its entirety but attention is called to certain topics which are particularly interesting to members of the petroleum industry.

Notch sensitivity; copper steels; low-alloy steels; chromium steels; tube steels; high-temperature steels; comparative strength and hardness of low-alloy steels; special properties introduced by each alloy element; costs (relative) of alloy steels; selection of low-alloy steels for service and by cost; impact strength of steels—shock strength is of vital importance in drilling equipment; low-temperature strength; endurance or fatigue limit of low-alloy steels; furnace castings; and sintered carbides and hard facings.

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Feathers Cut Hard Metals

THE following item which was taken from the Valve World of the Crane Co. and the Industrial Bulletin of Arthur D. Little, Inc., is not offered as a novelty. It is presented because resistance to abrasion and wear is of vital importance in many oil-field and refinery equipment items and because the industry has so much difficulty in predicting the wearability of certain parts of equipment. Resistance to wear is undoubtedly a different property from hardness as measured by hardness testers and hence any information that will contribute to our knowledge of wearability is of definite value.

"The recovery and use of feathers has long been an organized business and vast quantities of them have been diverted to various uses, including feather dusters. In making dusters, the feathers are drawn through a metal ring to regiment the quills. Light as they may be, the feathers have a protective structure of tiny, tough scales that scratch and eventually wear out this metal ring. One manufacturer found his rings wore so rapidly as to mean serious nuisance and expense; in succession various harder metals were tried—several types of steels, then Stellite, then carboloy. As none was entirely satisfactory, he asked for suggestions from an ingenious worker in metals.

"The successful solution was an exact reversal of the direction in which previous attempts were made. Little is known of the ultimate nature of friction, and the term 'hardness' is all but meaningless without a description of the manner of its measurement or the nature of the opposing forces. Hardness as measured by penetration of a steel ball may have no relation to hardness measured by depth of groove under a diamond cutter. It is therefore difficult to predict wear or friction with unusual materials or conditions.

"The microscopic surface of feathers presents an unusual combination of abrasive properties of surface, composition and shape. Rubbed against what the inventor called 'brute hardness,' minute particles of metal wore away, whereas lead, not rigid, but pliable, apparently flowed back and forth under the pressure of the feather surface. Lead was proposed and pure lead rings now wear almost indefinitely."

It is not to be inferred from the above that lead is a suitable material for such services as oil-well bits, seats and disks in valves, or pump plungers, but it may be inferred that other properties than simple hardness can be valuable in producing wear-resistant parts.

●

Nonsparking Refinery Tools

THE constant danger of fire or explosion when handling petroleum or its products has led to interest in nonsparking tools. A grave fire hazard exists in refineries, natural-gasoline plants, tank farms, and oil tankers; and although explosions are relatively rare, the loss in life and damage to equipment is so extensive when an explosion does occur that every precaution must be taken.

Aluminum alloy shovels and scoops are offered by the Wood Shovel & Tool Co., of Piqua, Ohio. In addition to freedom from sparking, these shovels are light in weight and somewhat resistant to corrosion.

Harder tools of the battering or chisel variety may be constructed of beryllium copper. In amounts of only 0.5 to 2.5 per cent, beryllium greatly hardens and strengthens copper. These alloys are among the strongest of all of the copper-base alloys, and strengths of even 180,000 lb. per sq. in. can be attained. However, ductility must be sacrificed in order to attain great strength or hardness.

●

Real Test of Alloy Steel

The superiority of certain alloy steels is not always readily determinable and may take years to determine what actual service may bring. However, the 1915 Mack truck which has been used by John H. Foley & Son, of Utica, N. Y., is mute testimony to the faithful service of certain alloy-steel parts.

The truck has been in continuous service for 24 years in hauling 5-ton loads of well-drilling equipment and at the same time pulling a 7-ton drilling machine. The following parts of the truck were forged from 3½ per cent nickel steel: crankshaft, connecting rod, differential and main-drive bevel pinions, front and real axels, countershaft, and steering knuckles. Not one of these parts has been replaced during the 24 years of service.

●

Metallurgical Terms

Calorizing or Calorized Steel

The A.P.I. Code of Metallurgical Terms for Ferrous Alloys, defines calorizing as:

"The process by which the surface of steel is impregnated with aluminum to impart increased resistance to oxidation at elevated temperatures and under some conditions, increased corrosion resistance."

AS THE BIT GOES, THE JOB GOES

When all is said and done every other piece of equipment on a drill rig is there to serve the bit. It is the focus of the entire operation. Increase the amount of hole per bit, even slightly, and down go drilling costs.

That is exactly what carburized Nickel-Molybdenum steels do in rock bit service – increase the amount of hole per bit.

Nickel-Molybdenum steels of the SAE 4600 and SAE 4800 series can be carburized and heat treated to give the ideal combination of properties for rock-bit cutters: an exceptionally hard, wear-resistant case thoroughly bonded to a core with adequate tensile strength, impact strength and ductility.

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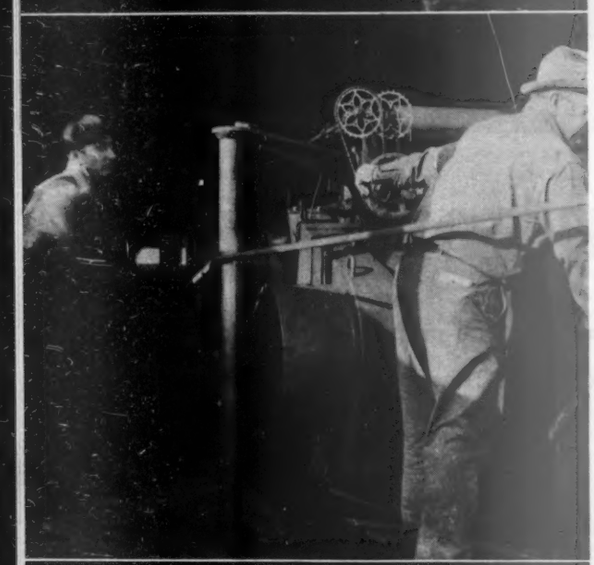


Rotary-Rig Cathead Operator Minimizes Drilling Time

By HARRY SIMONS

CATHEAD MEN on rotary drilling rigs are selected for their experience and knowledge of their own task and the tasks of the other men on the rig. In cases of emergency he must be ready and able to do the proper thing; often quick action on the part of a man in this position has prevented a serious accident. Formerly it was the derrick man who was considered next in line of succession for the drilling job, but at the present time it is the cathead man who is generally promoted when a vacancy occurs.

On steam rotary drilling rigs the fireman operates the cathead while a trip is being made, and on a mechanical rig the motorman performs this task. Where an unusually large mechanical or mechanical-electric rig is being used to drill a well, another member is added to the crew and designated as the cathead man; this is also the case where there is a departure from the normal steam-generating plant and in town-lot drilling where a city ordinance forbids the fireman being more than a specified distance from the boilers.

The fireman, when catheading, has more responsibility than the motorman, because the steam-generating equipment is located at some distance from the derrick floor and the boilers must be checked periodically for steam pressure and water level; if the boiler feed pump is not regulated properly, a "burned" boiler or an explosion may result. The motorman can check his equipment from his position at the cathead and can concentrate on the task at hand.

During the time the pipe is being pulled from the hole the cathead man has little to do ordinarily, as most rigs are equipped with an automatic cathead operated by a foot pedal at the driller's position. During this time he may make adjustments to the equipment, clean out the shale pits, transfer mud, keep the floor clean and help the floormen by holding the tongs.

The cathead man becomes an integral part of the crew when the bit is pulled from the hole and preparations are made to break off the old bit, install a new one and return the pipe to the hole. He must be an experienced man, as it is necessary that he anticipate the desires of the driller and provide the floormen with the proper ropes at the proper time.

His experience is valuable for the smooth working of the crew, and at the same time his working position is very dangerous as he is the only man on the rig not in easy view of the driller. The activities of the floormen and the derrick man can be observed and directed by the driller, and danger to them is avoided in many cases. The only check the driller has on the cathead man is the position of the ropes and their movement. In case anything is amiss, the driller will generally stop and take stock of the situation.

The cathead is one of the simplest pieces of apparatus on the drilling rig, and at the same time it can be the most dangerous. It is a smooth spool, flanged on each end, keyed to the line shaft and turns with it. Friction of the rope wound on the cathead provides the pulling power on the rope and an increase in the number of wraps of rope on the cathead increases the load that can be moved. Four lines are ordinarily used, the catline, spinning line, jerk line, and kelly-pullback line; in addition a continuous line is often used for running of straight-hole tests on many rigs.

The catline extends over a sheave on the crown block and back to the derrick floor with about 40 additional feet allowed for operation; it is used for handling equipment on the derrick floor or moving equipment into position and is frequently called on to lift or drag loads up to 5 tons. The spinning line is generally 1 in. or 1¼ in. in diameter and is used for spinning up the drill pipe. The jerk line is lighter, has one end attached to the tong handle, and is used for the final tightening of the tool joints. The kelly-pullback line is often a discarded jerk line and is used to pull the kelly over the rathole and to prevent the kelly swinging into the derrick too rapidly when it is pulled from the rathole.

The cathead man must handle all these ropes quite rapidly, and each individual will have little tricks to improve his speed, particularly while handling the spinning line and jerk line while going in the hole. The faster the rope is placed on the cathead, the greater the danger as the rope may foul and the free end and the pulling end will then be wound tightly on the cathead. A groove near the inside flange, the point of greatest wear on the cathead, is extremely dan-

The cathead man on one of Kingwood Oil Co.'s large rigs in the Salem, Illinois, field spins in a joint. In the view at the top, the rope is ready and he watches the floorman, while the driller watches the derrick man latch the elevators on the pipe. In the next view he adds more wraps to turn the pipe, screwing it together. Next, he waits until the drill pipe lacks about one turn of being made up and is properly aligned and then pulls sharply on the rope to make the joint snug. In the bottom view, he holds the running end of the line with his right hand while he flips the rope from the cathead with his left hand. The driller is Marley V. Adams, and he has been operating rotary rigs in Illinois since early in 1937 after long experience elsewhere. The cathead man is J. B. Barnes, veteran driller's helper

CEMENTS FOR OIL INDUSTRY SERVICE

—BACKED BY

CONTINUING RESEARCH IN THE FIELD AND LABORATORY

RIGHT AT THE RIG, Lone Star's oil-field service organization studies cementing problems—to keep the men at the mill constantly informed on oil-field requirements.
TESTS FOR NEEDED PROPERTIES and qualities—such as length and ease of pumpability at high temperatures—are part of daily routine.
NEAT-CEMENT TEST SPECIMENS are cured at 140, 170 and 200° F., to approximate the various conditions encountered in oil-well service—
AND STRENGTH, SO ESSENTIAL in oil-well cementing, is constantly checked. Work like this goes on all the time—we call it "keeping pace with progress."

Day in and day out, Lone Star's oil-field organization studies cementing problems right at the rig, to keep an accurate line on the Oil Man's requirements. Close contact with problems in the field enables us to make cements with the properties and qualities needed to meet changing conditions of oil-industry service.

That is why 'Starcor' and 'Incor' deserve to be called the Oil Man's Cements—because they are made to measure for today's oil-industry needs. Use 'Starcor' for deep wells, greater length and ease of pumpability at high temperatures. Use 'Incor' for wells of moderate depth—earlier drill-out, wells on production quicker. Insist on 'Starcor'* or 'Incor'*—it'll pay you well. *Reg. U. S. Pat. Off.

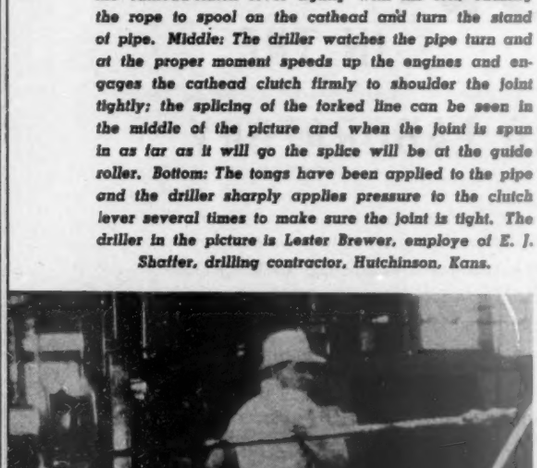
LONE STAR CEMENT CORPORATION

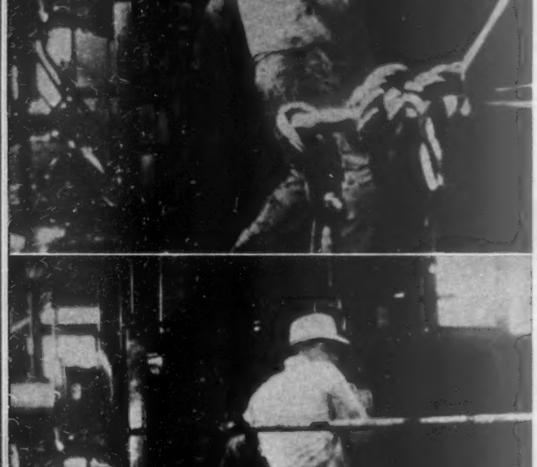
DALLAS: Santa Fe Building . . . . HOUSTON: Shell Building

gerous as it permits the rope to foul. The cathead man may be jerked into the cathead by the fouled rope and spun around, the loss or permanent injury of an arm being the minimum result and dismemberment being the maximum. Any outcry he may make will come too late.

Danger is increased by the necessity of watching the man on the other end of the rope or the progress of the task being performed. The backup man may become fouled in the rope wrapped around the pipe and be seriously injured if the cathead man applies power at the wrong time. The photographs provide excellent illustrations of one phase of the cathead man's work, spinning up drill pipe when going in the hole.

Spinning and tonging pipe with forked line on cathead operated by a clutch lever located at the driller's position. Top: The driller holds the brake with his knee, operates the throttle with his right hand and depresses the cathead-clutch lever lightly with his left, causing the rope to spool on the cathead and turn the stand of pipe. Middle: The driller watches the pipe turn and at the proper moment speeds up the engines and engages the cathead clutch firmly to shoulder the joint tightly; the splicing of the forked line can be seen in the middle of the picture and when the joint is spun in as far as it will go the splice will be at the guide roller. Bottom: The tongs have been applied to the pipe and the driller sharply applies pressure to the clutch lever several times to make sure the joint is tight. The driller in the picture is Lester Brewer, employe of E. J. Shaffer, drilling contractor, Hutchinson, Kans.





1. The cathead man has coiled the running end of the rope and laid it on the rotary table and resumed his position at the cathead. (Many cathead men prefer to coil the rope for the backup man, while others let the backup man handle his own end of the line.) He has the start of the first wrap on the cathead, holding the slack in the line with his right hand. The driller is watching the progress of the work above, while the cathead man observes the position of the floormen. As soon as the pin on the stand (fourble, thribble or double) of pipe is sent in the box of the pipe already in the hole, the backup man slides the coiled rope upward around it and the cathead man then starts to spin the pipe by putting a few wraps of rope on the cathead.

2. More wraps go on the cathead, being applied with the right hand while the left keeps the loose end of the rope free. Tightening of the line can be seen in the photograph. During this part of the operation, the rope is also tightening on the stand of drill pipe and at the same time the stand of pipe is turning. Advantage is taken of the swinging of the pipe, the turning being easiest when it is in correct alignment but the heavy threads allowing it to turn with some difficulty when it is not aligned.

3. The full complement of wraps is on the cathead and the cathead man studies the swing of the stand before applying the final pressure. At the proper moment he jerks hard on the spinning line and the tool joint shoulders meet. At this point the cathead man is off balance, being prevented from falling by his grasp on the rope. Most contractors prefer the shouldering to be rather gentle and the final tightening to be made with the tongs, as this prevents excessive wear on the joint faces. Some contractors still permit their men to jam the joints with the spinning line, sparks actually flying as the shoulder faces come together. Trying to spin the pipe when it is out of line also damages the thread and causes the rope to become heated with resultant high breakage.

4. As soon as the joint is made up as far as desired with the spinning lines, the cathead man pulls off part of the rope remaining on the pipe and then starts to remove the wraps of rope from the cathead. The backup man generally keeps one wrap on the pipe to prevent too much slack getting in the line which will cause the rope to foul. The cathead man holds the line with his right hand and flips the rope from the cathead with his left. Some cathead men prefer to keep their right hand on the rope on the cathead, a slight back pressure causing it to slide over the cathead face; they then flip each individual wrap off with the fingers of their left hand.

Joint Finally Tightened

As soon as the spinning line is off of the cathead, the tong line must be put on and the joint finally tightened. The cathead man drops the spinning line at his feet and grabs the jerk line, which is hanging on a cleat, lying over a bench or in some convenient place. As soon as he puts the second wrap of the jerk line on the cathead, he checks the position of the tongs and the men before applying the force necessary to tighten the joint.

Quite a large number of contractors now have safety catheads which perform the spinning and tonging operation without any handling of the rope by a man at the cathead. Spinning and tonging are accomplished by a cathead driven through a friction clutch which is operated by a lever at the driller's position. Complete control of the cathead is in the hands of the driller and as soon as he releases the pressure from the control lever the cathead stops turning; the rope on the cathead can then be unwound easily by simply pulling on the rope. The cathead end of the rope remains fastened to the cathead while making a trip.

Use of this type of cathead is particularly helpful to a driller on a smaller rig which has only four members in the crew. The driller then has to do the catheading himself and this increases the hazard as there is no one at the throttle when the regular-type cathead is used, and in case of an emergency it would be a matter of seconds before the driving machinery and many rigs could be shut down. The procedure also requires more time as the driller must hang a weight on the brake or fasten it in position, go to the cathead, pick up the spinning line, spin in the stand, remove the spinning rope from the cathead, pick up the tong line, tong the joint, resume his place at the brake, and close the throttle preparatory to raising the pipe. This is all quite wearing on the driller.

The safety cathead uses a forked line and thus only one line must be spooled on the cathead drum for both spinning and tonging. Forked lines have been used on the regular cathead for a number of years, being particularly common to Louisiana and Gulf Coast drilling operations. The spinning line is spliced into the tong line at a point that will allow the tongs to have no strain on them when the spinning operation is completed. This gives the pipe racker time to make the tongs bite and the backup man time to get the end of the spinning line off of the pipe before the strain is applied to the tong line. Some manufacturers make a swivel joint for forked lines which prevents kinking of the spinning lines in operation.

In operation the backup tongs are latched on the tool-joint box and the coiled rope placed around the pipe and laid on the tongs. Most backup men prefer to coil the rope so it will unwrap upward instead of downward, as this gets the rope away from the tongs and makes it easier to handle. As soon as the tool-joint pin on the new stand is set in the box both the tongs and rope are slid upward and the cathead man immediately begins spinning the stand. The tool joint faces meet just as the backup man has only about 6 in. of rope left in his hand. There then is about 10 in. of slack in the tong line. The catheadman hesitates a moment to allow the backup man to remove his rope and the pipe racker to shove the tongs around so they will bite and then gives a few sharp jerks on the rope to make sure the joint is tight.

The procedure with the safety cathead is much the same: the driller holds the brake with his knee, and has both hands free to operate the throttle and cathead clutch simultaneously. He applies pressure to the control lever and watches the progress of the spinning. As the stand swings into perfect alignment, he speeds up engine and forces the tool-joint faces together. The driller then momentarily releases the clutch on the cathead while the rope is removed from the pipe and the tongs made to bite, after which he applies pressure sharply several times on the cathead-clutch lever to make sure the joint is tight. If any man is out of position or an emergency arises, release of the pressure on the cathead control lever immediately disengages the drive on the cathead.

As the forked line has its one end attached to the cathead, the rope is not burned because operation of the cathead is not dependent on friction. The safety cathead is not recommended for heavy lifting, the off cathead being used for such work. It is also obvious that the extreme hazard in applying spinning rope to the cathead body is entirely eliminated as the operator does not handle the rope.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Steam for Removal of Paraffin From Wells and Sands

Please give me any information you might have with reference to steam being used on oil wells for cutting paraffin.—H. H.

Steam is applied for the removal of paraffin from wells and from the face of producing sands. The subject is well covered by C. E. Reistle, Jr., in a U. S. Bureau of Mines publication, from which the information used here is derived.

"The accumulation of paraffin within the oil string of wells producing paraffin or mixed-base crude oil constitutes a great production problem. Usually the paraffin is deposited as a hard, granular coating generally extending to the top of the well from a depth where the temperature of the surrounding formation is approximately the same as that at which the oil is saturated with wax. Many conditions or factors affect the deposition of paraffin and in some wells it has been found deposited throughout the entire length of the oil string. Deposited paraffin gradually closes the pipe unless it is removed frequently or prevented from accumulating. In natural-flowing and gas-lift wells paraffin acts as a choke, which gradually decreases the production and in time completely stops the flow of oil unless removed. In gas-lift wells the accumulation of paraffin can be detected readily by a grądual increase in the input gas pressure required to flow the well; in natural-flowing wells it is more difficult to detect, as the decline in production caused by the paraffin is often mistaken for the normal decline of the well and this results in loss of a portion of the available production."

Steam is used to transmit heat to the oil string in a well to melt the wax so that it may be flowed from the well with the oil. The steam is injected into the space between the tubing and the casing. It is essential that the steam pressure shall be more than the formation pressure and that the hot water condensed from the steam does not emulsify with the oil. Sufficient steam should be applied to deliver a temperature of 135° to 145° F. below the accumulation of paraffin for a period of 3 to 6 hours, which will usually be long enough to melt the deposits of wax. Valves may be spaced at about 200 ft. along the tubing for injecting the steam but good results have been obtained introducing the steam directly into the space between the casing and tubing.

Steam coils may be used in place of direct steam to eliminate the formation of emulsions and to overcome high bottom-hole pressures. The steam pressure must be sufficient to raise any water condensed from the steam. This may confine the use of steam for this purpose to relatively shallow wells, for a 200-ft. head of water exerts a pressure of approximately 87 lb., so 90 lb. of steam pressure would have to be available to operate a coil extending 200 ft. into the well.

Deposition of paraffin on the face of the sand is encountered generally in older fields where the fluid level has been maintained near the bottom of the sand. Before introducing steam the liquid level should be brought to the top of the sand.

A string of small diameter pipe is run to the bottom to carry the steam. After the steam has been applied the well is put on the pump and pumping continued during the steaming process to remove accumulations of paraffin, oil and water. The addition of several barrels of kerosene to small well while steaming then is advisable.

Reference: C. E. Reistle, Jr., Paraffin and Congealing-Oil Problems. U. S. Bureau of Mines. Bulletin 348.

Odor of Natural Gasoline From Hydrogen Sulfide

I noticed in the November 23, 1939, issue of The Oil and Gas Journal, Page 60, under the heading "Forms of Objectionable Sulfur Found in Natural Gas," your mention of odorization of natural gas.—G. C. [The material quoted is from the letter.—Editor.]

"The reader would infer from this discussion that hydrogen sulfide is a recommended odorant for natural gas, or might even go farther and assume that hydrogen sulfide is used for this purpose. As brought out in the third paragraph of the discussion, the permissible quantity of hydrogen sulfide that may be present in natural gas when sold for domestic use is subject to regulation. Where such regulation is in effect it usually states that the concentration of hydrogen sulfide should not exceed that detectable by the lead acetate test, which corresponds to approximately 0.3 grains of H_2S per 100 cu. ft. of gas, or 0.0005 per cent H_2S. According to U. S. Bureau of Mines Monograph 4, "Warning Agents for Fuel Gases," a "weak odor, readily perceptible" is produced by hydrogen sulfide in air in a concentration of 0.000073 per cent. It is common practice to odorize natural gas so that 1 per cent gas in air is detectable; this gives a safety factor of 5, inasmuch as the lower explosive limit of natural gas in air is approximately 5 per cent gas. Therefore, to odorize natural gas with hydrogen sulfide so that 1 per cent natural gas would be detectable in air, would require the gas to have a concentration of 0.0073 per cent hydrogen sulfide. This is more than 10 times the concentration allowed by regulatory bodies, as already discussed. It is also a concentration at which corrosion might be expected in iron pipes, particularly if liquid water, and even traces of oxygen, were also present. I therefore feel that hydrogen sulfide is a very undesirable chemical to advocate as a gas odorizing medium."

Natural gas should have an odor for safety reasons, so that leaks may be quickly detected. There are several excellent preparations available for odorizing gas. One of these is essentially mercaptans and another contains malodorus organic sulfur compounds.

Physical and Chemical Laws and Principles Used in the Petroleum Industry

STOKES' LAW

gives the rate of fall of a small sphere in a viscous fluid. When a small sphere falls under the action of gravity through a viscous medium it ultimately acquires a constant velocity:

$$V = \frac{2gr^2(d_1 - d_2)}{9n}$$

where r is the radius of the sphere, d_1 and d_2 the densities of the sphere and the medium respectively, and n is the coefficient of viscosity. V will be in centimeter per second if g is in centimeter per second squared, r in centimeter, d_1 and d_2 in gram per cubic centimeter and n in dyne-second per squared centimeter or poises.

Conditions Relating to Grease Containing Naphthenic Oil

In reference to your remarks on greases made with naphthenic lubricating oils in The Oil and Gas Journal, January 4, Page 49, I suggest the following for your consideration.—B. G.

Lubricating greases, in general, are considered colloids. The only chemical reaction which takes place is when the soap base is manufactured. In the case of calcium-base greases, a certain amount of moisture is necessary, which the grease manufacturer calls tie water, and that functions as a binding medium between the oil and the soap. Soda-base greases also contain more or less moisture, although they can be cooked down to a rather dry nature and still be satisfactory lubricants.

It is true that some lubricating oils show a slight acidity but we have had Mid-Continent paraffin-base oils which give a higher naturalization value than naphthene-base oils. The fact remains that lubricating greases made using naphthene-base oils do not show as much tendency to bleed as where oils of other types are used, but it is thought conditions of manufacture, including balanced chemical reactions and proper mechanical blending of soap and oil to form a good structure, are of first importance.

Quantity of Gasoline Produced by Straightrun and Cracking

We wish to know what is the volume or per cent of gasoline produced from crude oil in the United States by topping and by cracking.—M. P. C.

The quantity of gasoline produced from crude oil by topping (straightrun) operations in the United States varies to a small extent from year to year, the percentage yield being between 21 and 23 per cent. The latest figures available are those for the year 1938; the following is based on these.

The yield of straightrun gasoline from all crude oil refined was 21.07 per cent and cracking produced 23.17 per cent, making a total of 44.24 per cent as the average yield from the barrel of crude oil in the United States. The total quantity of gasoline made from straightrun and cracking operations in 1938 was 515,889,000 bbl. The volume of crude oil run to stills was 1,165,015,000 bbl., but 2,448,452,000 bbl. would have been required for the same quantity of gasoline without cracking, which is equivalent to a saving of 52.42 per cent crude oil conserved by cracking.

Reference: Facts and Figures, American Petroleum Institute, 1939 Edn., p. 87.

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FIELD OPERATIONS

Summarizing the Week's Developments

ILLINOIS—Production rose to 387,017 bbl. per day, Salem producing 237,009 bbl. per day. The Dundas pool in Richland County was extended ¾ mile northward. A new pool producing from the Hardinsburg sand was opened in White County by a well that flowed 637 bbl. per day. It is the first Hardinsburg production in the state. Twenty-five wells were in the Devonian pay ready for completion in Township 2n-2e, Salem pool.

KANSAS—A connecting well between the Wolf and West Ellinwood pools, Barton County, was completed. Silica field was extended ½ mile westward in Barton County, indicating connection with West Ellinwood area. The Rahn pool opener in Cowley County was completed for a potential of 1,035 bbl. The North Bornholdt pool opener in McPherson County was deepened and recompleted for potential of 3,000 bbl., an increase from 180 bbl. Gas wells gaging 125,000,000 and 116,000,000 cu. ft. were completed in the Cunningham pool, Kingman County.

OKLAHOMA—Three wildcats have been started in southeastern Logan County, on a major structural trend south of the Coyle pool, Payne County. A small wildcat producer was completed in an area midway between the Healdton and Hewitt pools, Carter County. Wildcats were started in Hughes and Creek counties.

TEXAS: Gulf Coast—Titanic Oil Co. and others may have a pool opener in the East Hankamer district in their test which attempted to blow out. Same company extended production in the South China field, Jefferson County.

Southwest Texas—The discovery well of the Fagan field in Refugio County flowed 156 bbl. of 41-gravity oil per day through a choke. Three dry holes in the Victoria field in Victoria County may discourage activity there. Six wells are drilling in search of the Tertiary Wilcox sand in the Laredo district.

West Texas—The deep Holt horizon in the North Cowden field was extended 2½ miles. A 500-bbl. well in the link area of the Wasson and Bennett fields provides a major spread of acreage.

North and East Texas—Two wildcats in the Anarene district in Archer County, seeking production in the lower Bend series, were abandoned as dry. A new pool in the deep Trinity series was assured northeastern Smith County but its importance was yet to be proved.

LA-ARK-TEX—Deep production on the flank of the old Anse La Butte field in St. Martin Parish, coastal Louisiana, was discovered by Glassell & Glassell, the discovery well starting at 339 bbl. per day. The first deep producer on the Bayou Blue dome in Iberville Parish flowed 336 bbl. per day. Oil production in the Sugar Creek field in Claiborne Parish, North Louisiana, was extended ½ mile. A Smackover-lime test in Union County, Arkansas, was dry and abandoned at 9,069 ft.

CALIFORNIA—Completions were well scattered through the various fields of the state, but no new pools or unusually large producers were developed.

MICHIGAN—Average initial production of new wells again showed a decline. The best well of the week started at 500 bbl. per day.

Completions in All Fields

(Week Ended February 10, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	51	11	1	63	481	398
Ohio	4	3	4	11	107	122
Indiana	3	1	1	5	40	21
Kentucky	0	0	0	0	35	78
Illinois	50	0	9	59	421	447
Michigan	13	3	4	20	164	124
Kansas	19	1	3	23	162	134
Oklahoma	13	4	12	29	201	204
Texas:						
North Central Texas	23	0	15	38	363	244
West Texas	17	0	0	17	278	220
Texas Panhandle	5	2	0	7	73	48
East Texas	6	0	0	6	39	121
East Central Texas	0	0	0	0	29	30
East Texas Border	1	0	1	2	6	12
Gulf Coast Texas	15	0	3	18	170	158
Southwest Texas	32	2	4	38	277	269
Total Texas	99	4	23	126	1,235	1,102
North Louisiana	7	2	0	9	73	56
Gulf Coast Louisiana	17	0	1	18	111	88
Total Louisiana	24	2	1	27	184	144
Arkansas	3	0	1	4	32	35
Mississippi	1	0	0	1	16	0
Montana	1	0	0	1	19	17
Wyoming	1	0	0	1	21	9
Colorado	2	0	0	2	5	1
New Mexico	12	1	3	16	102	82
California	15	0	2	17	133	107
Total United States	311	30	64	405	3,358	3,025
Total previous week	314	34	91	439		
Week ended Feb. 11, 1939	331	28	125	484		

Outstanding Fields—Highlights

(Week Ended February 10, 1940)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	24	44	6	4,520	1,256	29,000
Wasson-Bennett	39	70	2	2,098	643	23,967
Ector County	18	71	5	7,229	1,959	45,847
Pecos County	11	23	3	251	1,287	29,000
Jones County	13	21	1	260	578	8,700
East Texas	11	17	6	247	26,025	400,000
OKLAHOMA						
St. Louis	4	30	1	131	925	34,150
Cement	7	22	0	0	286	6,750
KANSAS						
Barton County	5	20	9	2,839	469	11,585
Ellis County	3	19	4	1,846	485	12,700
Rice County	4	21	2	448	1,427	33,355
Russell County	6	23	2	764	1,475	32,755
NEW MEXICO						
Lea County	4	47	10	1,789	2,370	86,870
Eddy County	12	59	2	96	510	15,180
LA-ARK-TEX						
Cotton Valley, La. (deep)	0	6	0	0	153	14,590
Magnolia, Ark.	1	8	3	2,580	90	20,520
MICHIGAN						
Freeman-Redding	4	9	2	419	141	14,828
Kent County	7	33	3	210	270	17,455
CALIFORNIA						
Montebello	1	19	1	460	346	24,900
ILLINOIS						
Salem	16	120	15	42,729	1,641	237,009
Louden	6	32	8	2,587	1,332	68,510
Other basin fields	38	238	37	5,202	3,471	74,522
Old fields	....	.....	....	.....	.....	6,976
MISSISSIPPI						
Tinsley pool	2	6	1	1,850	17	5,100

Illinois, Indiana and Kentucky

By STAFF CORRESPONDENT

Dundas Pool Extended; New Pay Found in White County

MATTOON, Ill., Feb. 12.—A new productive sand in a new pool in White County; extension of the Dundas pool in Richland ¾ mile, and an increase in production in the state of 13,717 bbl. daily, bringing total daily average production for the week ending Saturday up to 387,017 bbl., were features of the week in Illinois. The Devonian lime in Township 2n-2e, Marion County, shows new wells of immense potential production.

The Dundas pool in Richland County was extended ¾ mile northerly by Pure Oil Co.'s No. 2 Heap in Section 30-5n-10e which started at 40 bbl. of oil per hour natural flow from McClosky lime.

Production mounted to a new peak for the state. Salem produced an average of 237,009 bbl. per day; Louden, 68,510 bbl. and other basin fields 74,522 bbl. The old fields, with a production of 6,976 bbl. per day, brought the total to 387,017 bbl.

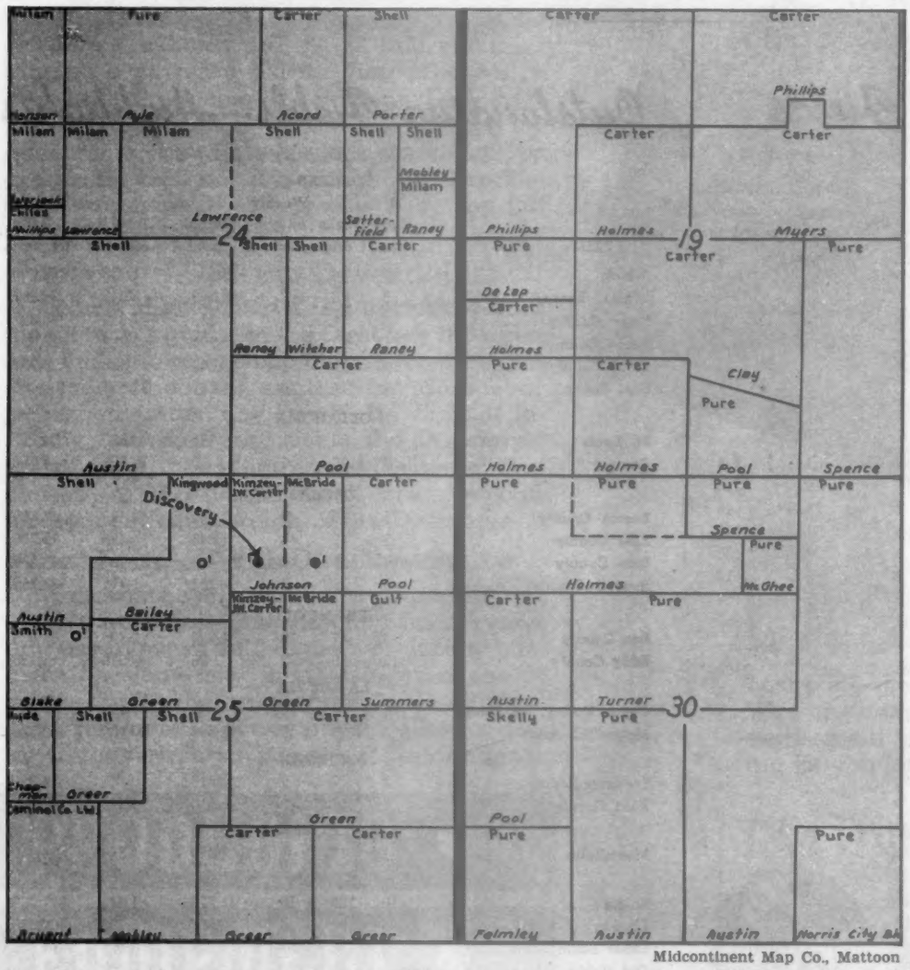
New Pool in New Pay

J. W. Carter and others not only opened a new pool in White County, but completed their well in a sand that has not been productive in the state in the past. Their No. 1 Johnson, SW NW NE Section 25-6s-8e, topped the Hardinsburg sand at 2,485 ft., total depth of the hole 3,528 ft., and the well flowed 637 bbl. naturally in the first 24 hours from Hardinsburg, which lies in the Chester series (upper Mississippian) between the Glen Dean and Golconda lime and shale horizons. The Hardinsburg lies above all the pays in Fayette and Marion counties, but below the Waltersburg sand which pays off in White County. Already three locations have been made as a result of Carter and others' discovery. Kingwood Oil Co. made a location for No. 1 Bailey, 60 ft. north of the center of SE NE NW Section 25. W. C. McBride, Inc., was drilling below 970 ft. in No. 1 Johnson, C SE NW NE Section 25, and Roberts Brothers have made a location for a Devonian lime test, No. 1 Blake, SW cor. NE SW NW Section 25.

One hundred and fifty two Devonian-lime operations in Township 2n-2e, the upper end of the Salem field in Marion County, including completions, wells drilling, derricks up and locations made, were on record late last week. Most of these are in Sections 29 and 20-2n-2e, but the sections on every side have a share in the search for the deep-lime production. Four wells reported late in the week by the Texas Co. had a combined potential production close to 32,000 bbl. per day. Only one well previously drilled exceeds two of the four new wells in potential output. The Texas Co.'s No. 14 Shanafelt, NE NE NW Section 29, produced 4,798 bbl. in 13 hours, or at a rate of 8,880 bbl. per day, from Devonian at a total depth of 3,434 ft. Texas Co.'s No. 21 McCollum, 228 ft. from north and 330 from west lines, SE SE Section 29, flowed 1,077 bbl. in 3 hours, and was rated at 8,616 bbl. per day, at a total depth of 3,442 ft. Texas Co.'s No. 18 Friesner, 400 ft. from south and 380 from east lines of NE NW Section 32-2n-2e, flowed 2,859 bbl. in 9 hours, or at the rate of 7,632 bbl. per day from a total depth of 3,439 ft., top of the pay 3,325 ft., and Texas Co.'s No. 21 W. Friederich, SE NW SW Section 29-2n-2e, flowed 820 bbl. in 3 hours, total depth 3,405 ft. It was given a rating of 6,552 bbl. per day. All four wells had been acidized.

The following wells were in the Devonian pay ready for completion: Magnolia Petroleum Co.'s No. 79 Young, in Section 29, which flowed 1,753 bbl. while cleaning out; No. 77 J. H. Young in Section 21; Nos. 17, 18, 19, 20 and 22 J. R. Young in Section 29; No. 37 Shanafelt in Section 29; Nos. 80 and 81 J. H. Young in Section 28. Shell Oil Co., Inc.'s No. 2-C, 4-C and 5-C Young heirs and No. 4-C Salem State Bank in Section 20 and No. 6 Farthing in Section 32. Texas Co.'s 7-A Sweney in Section 20; No. 23 Friederich A, Section 29; Nos. 12 and 13 Fossick, Section 29; No. 21 N. Lee in Section 28; No. 17 Friesner, Section 32; No. 5 Telford in Section 29; Nos. 13 and 15 Shanafelt in Section 29; and W. C. McBride, Inc.'s No. 19 N. L. Lee in Section 29. All the above 25 near completions can be finished by the time this news reaches the reader, and by that time other wells, which were on top of or very near the Devonian lime, will have taken their places in the Devonian pay.

Not including the four big Texas Co. wells above mentioned, there were 15 completions in the Salem field in Marion County, with actual first-day production of 42,729 bbl., and no dry holes. In Fayette 11 oil wells made 2,949 bbl. initially; Richland County, 2 new wells, good for 736 bbl.; Clinton County, 4 wells, 830 bbl.; Clay County, 5 wells, 1,129 bbl.; Wabash County, 4 wells, 268 bbl., and White County, 9 wells, 1,877 bbl. Two dry holes in Clinton, 1 in Gallatin, 2 in Wabash and 4 in White, summed up 9 wells that failed to find production. There were no gas wells, although some wells in the Storms pool produced a lot of gas with their oil production.



Midcontinent Map Co., Mattoon

J. W. Carter and others opened a new pool in White County, the production coming from the Hardinsburg sand, which has not produced in any other field in the state. The discovery well is in Section 25-6s-8e. It flowed 637 bbl. the first day

Fayette County

In the Louden field in Fayette County Carter Oil Co.'s No. 4 Dunaway, NE NE SE Section 29-8n-3e, was shot with 60, 30, and 30 qt. and estimated production from Weller sand was 100 bbl., Paint Creek stray 300 bbl., and Bethel sand 638 bbl., total initial 1,038 bbl., total depth 1,589 ft. Minerva Oil Co.'s No. 1 Tisk, NW NE SE Section 33-8n-3e, Cypress-sand top at 1,465 ft., total depth 1,526 ft., plugged back from 1,557 ft., pumped 65 bbl. without a shot. Carter Oil Co.'s No. 2 Brooks-Hopper, SE SW NE Section 23-8n-3e, shot with 40 qt. at 1,503-16 ft., swabbed 756 bbl. and 50,000 cu. ft. of gas. Carter Oil Co.'s No. 12 Durbin, NW NE NE Section 8-7n-3e, 6-in. casing set at 1,564 ft., total depth 1,581 ft., shot with 12 qt., swabbed 79 bbl. Carter Oil Co.'s No. 3 Shelton, SW NW NW Section 9-7-3e, shot with 25 and 30 qt. at 1,469-81 ft., swabbed 168 bbl. and 3 bbl. of water. Carter's No. 3 Harper, NW SW NW Section 17-7n-3e, 6-in. casing set at 1,549 ft., total depth 1,560 ft., 10 and 30-qt. shots, swabbed 114 bbl. Shell Oil Co., Inc.'s No. 4 Harper, NW SE NE Section 18-7n-3e, 4½-in. casing set at 1,568 ft., total depth 1,595 ft., 6 and 3-qt. shots, pumped 69 bbl. of oil and 2 bbl. of water. Minerva Oil Co.'s No. 5 Richardson, NE NE NW Section 21-7n-3e, Cypress-sand top at 1,528 ft., total

depth 1,548 ft., 10-qt. shot, pumped 104 bbl. of oil and 1 bbl. of water. Carter Oil Co.'s No. 12 Griffith, SE NW NE Section 31-7n-3e, Cypress sand at 1,519-58 ft., shot with 20 qt., swabbed 194 bbl. of oil and produced 10,000 cu. ft. of gas.

In the St. James field in Fayette County, Zephyr Drilling Co.'s No. 2 Smith, SW SE SW Section 31-6n-3e, Cypress-sand top at 1,519 ft., total depth 1,619 ft., shot with 10 qt. at 1,617-32 ft., swabbed 95 bbl. of oil and 10 bbl. of water in 22 hours. Ohio Oil Co.'s No. 1 A. E. Schorm and others, SW SE SW Section 30-6n-3e, Cypress sand at 1,599-1,602 ft., shot with 7 qt. at 1,602-16 ft., total depth, pumped 115 bbl. of oil. Ohio Oil Co.'s No. 5 Rush, SE NW SW Section 30-6n-3e, shot with 9 qt. at 1,535-51 ft., Cypress sand, pumped 152 bbl.

In the Dundas pool in Richland County, Pure Oil Co.'s No. 4 Glossbrenner, NW SW NW Section 31-5n-10e, Fredonia-lime top at 2,830 ft., pay at 2,832-40 ft. and 2,845-50 ft., flowed 546 bbl. naturally through a 1-in. choke, and 1,500,000 cu. ft. of gas; casing pressure 320 lb. and tubing pressure 75 lb. In the Noble pool, Richland County, Pure's No. 3 Pflaum, NE NE NE Section 5-3n-9e, Cypress sand at 2,590-91 ft., total depth, pumped 190 bbl. of oil and 6 bbl. of water.

In the Fairman area in Clinton County Cascade Oil Co.'s No. 4 Adams, SE cor. NE SE NE Section 13-3n-1w, had Aux Vases sand at 1,449 ft., total depth 1,465 ft., which showed only water; abandoned.

Salem Devonian Completions

In the Salem pool in Marion County the following Devonian-lime wells were completed: Texas Co.'s No. 20 D. Young, SW SW NW Section 21-2n-2e, pay at 3,343-65 ft., acidized with 5,000 gal., flowed 2,106 bbl. per day. Magnolia Petroleum Co.'s No. 33 S. Shanafelt, NE NW SE Section 29-2n-2e, Devonian top 3,319 ft., total depth 3,433 ft., acidized with 4,000 gal., 4,800 bbl. Magnolia Petroleum Co.'s No. 34 S. Shanafelt, SW cor. NW SE Section 29-2n-2e, Devonian top at 3,329 ft., total depth 3,419 ft., 5,000 gal. of acid, 6,337 bbl. through open casing and tubing. Magnolia's No. 35 S. Shanafelt, NW SW SE Section 29-2n-2e, Devonian top at 3,314 ft., total depth 3,404 ft., 5,000 gal. of acid, 3,636 bbl. Magnolia's No. 36 Shanafelt, NE SE SW Section 29-2n-2e, Devonian top at 3,323 ft., total depth 3,415 ft., 5,000 gal. of acid, flowed 6,969 bbl. W. C. Mc-

(Continued on Page 80)

INDIANA

EVANSVILLE, Ind., Feb. 12.—Three oil wells completed in Posey County with a combined initial production of 270 bbl., a gas well in Decatur County and a dry hole in Vanderburgh County comprised the results of the week's developments in Indiana.

In Posey County Superior Oil Co.'s No. 25 New Harmony Realty Co., NE SE NE Section 9-5s-14w, was a 100-bbl. pumper at 2,174-94 ft., and No. 22 New Harmony, NW SE NE Section 9, started at 150 bbl. per day from sand at 2,172-2,207 ft. J. E. Crosbie, Inc.'s No. 4 Keck, NW SW NE Section 34-3s-14w, made a 20-bbl. pumper producing from sand at 2,143-53 ft.

Joe Minton and others' No. 1 Hill, NW SE NW Section 7-4s-13w, was drilling at 2,135 ft. George Harsh, Jr.'s No. 1 Keck, NW cor. Section 35-3s-14w, cemented 4½-in. liner at 2,562-2,762 ft., total depth of the hole at 2,810 ft. Continental Oil Co.'s No. 1 Kleiderer, NE NW NW Section 35-3s-14w, was at a total depth of 2,512 ft. and concrete pump foundation was being built. J. D. Wrather and others' No. 1 Keck, on a 2½-acre tract in the SW NE NE NW Section 34-3s-14w, was rigging up rotary. Somers & Egan were digging cellar and pits for No. 3 Keck, SW cor. NW NE Section 34-3s-14w. No. 2 Keck, SE NW NE Section 34, had Glen Dean top at 2,270 ft. and was drilling at 2,600 ft. J. S. Roberts' No. 1 Keck, C N½ N½ NW Section 34-3s-14w, set 7-in. casing at 2,795 ft., total depth. Brown, Ryan and others' No. 1 Spencer, C E½ SE SE Section 26-7s-15w, had a showing of oil at 2,554-64 ft. and 2,580-2,606 ft. Ste. Genevieve lime was topped at 2,760 ft., total depth 2,820 ft., and drilling ahead. O. F. Kelley and others are rigging up standard tools to start No. 1 Hahn, SE SW NW Section 1-7s-12w, on a Sun Oil Co. farmout.

Gibson County

In Gibson County Continental Oil Co.'s No. 1 Kleiderer, NW SE NW Section 26-3s-14w, made a drill-stem test at 2,762-86 ft., open 40 minutes, recovering 75 ft. of oil and mud and a showing of gas, coring at 2,904 ft. Lacey and others' No. 1 Dunn, SW cor. NW SE SW Section 18-3s-13w, was shot with 25 qt. at 2,509-17 ft. Oil rose 1,700 ft. in the hole. Fotiades and others' No. 1 Fleener, SE NW SE Section 21-3s-12w, topped Ste. Genevieve lime at 2,595 ft., had a showing of oil at 2,657-60 ft., and was drilling at 2,675 ft. A. L. Braden and others' No. 1 Simpson, NW SE NE Section 19-3s-11w, had a hole full of water at 2,012 ft., and was drilling at 2,060 ft., with no showing of oil. K. T. & F. Oil & Development Co.'s No. 1 Schultz, NE NE SE Section 18-1s-9w, was drilling at 1,162 ft. J. W. Chamberlain's No. 1 Schuman, Donation 121, Township 1s-10w, was drilling at 185 ft.

In Vanderburgh County J. L. Drake's No. 1 Seib, SE NE NW Section 23-5s-10w, was shut down at 1,000 ft. with the hole full of water.

In DuBois County Indiana-Illinois Producing Corp.'s No. 1 Schipp, NE NE SE Section 1-3s-5w, was drilling at 377 ft.

In Pike County George W. Miller's No. 1 Nixon, SE SW NE Section 14-3s-8w, underreamed 5-in. casing to 3,835 ft. Newton Pipe Line Co., using cable tools, spudded a McClosky-lime test, No. 1 Crown, C NE NE Section 24-1n-9w.

In Daviess County Harrison Development Co. was drilling at 600 ft. in No. 1 Lewis, NW NW SE Section 29-5n-3w.

(Continued on Page 91)

KENTUCKY

OWENSBORO, Ky., Feb. 12.—One well was completed in western Kentucky in the past week. Reports from eastern Kentucky show no completions.

Daviess County, Hewlett's Store district: F. F. Gibson and others' No. 2 W. H. Harrison will be shot in Jackson sand at 970-83 ft., total depth 1,077 ft. Utica district: J. C. Miller, trustee's No. 8 Gus Morgan is a 50-bbl. well in Jones sand, total depth 1,431 ft.; Barlow sand was dry and the hole was plugged back to 1,392 ft. Roy Beard's No. 1 Utica Church lot, moving in. Tombs & Smith's No. 1 Utica Mill lot, spudding in. Stewart, Snyder & Sargant's No. 2 Dr. A. A. Westerfield, rigging up to drill McClosky deeper; old total depth 1,712 ft.

Ohio County, Maxwell district: T. M. Galey and others' No. 2 W. A. Hines, location.

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Southwest Texas District

By
F. L. SINGLETON

Fagan Field Discovery Well Looks Like Paying Producer

CORPUS CHRISTI, Tex., Feb. 12.—C. L. Norsworthy's No. 1 B. J. Fox, discovery well of the Fagan field, Refugio County, flowed 156 bbl. of 41-gravity oil on a 24-hour potential test through a 7/64-in. choke. Casing pressure was 1,965 lb. and tubing pressure 825 lb. This well, reported the previous week as a pool opener, was drilled to 6,715 ft., and completed through perforated casing at 5,895-98 ft. The new field is in the James Fagan Survey, about 2½ miles south of the McFaddin field. Tentative location was made by the operator for No. 1 B. J. and Cora Fox, while Quintana Petroleum Co., and Humble Oil & Refining Co. staked location for No. 1 Fagan, an offset to the discovery.

Northwest of the town of Odem, San Patricio County, Fred Wood's No. 1 Hart was attracting attention as sand with a gas odor was cored at 6,907-16 ft. The operator attempted a drill-stem test, but the seat of the testing tool failed to hold, and the test showed only 100 ft. of mud, slightly cut with oil. At the close of the week another test was being made. Location is in the William G. Burgess Survey.

The abandonment of three wells in the Victoria field, Victoria County, is expected to curtail activities. Loma Oil Co. abandoned No. 1 Schier at 2,585 ft. Stolley-Simms' No. 1 Vog was quit at 2,715 ft., while J. W. Dewall's No. 1 J. H. Fox was abandoned at a total depth of 5,251 ft. It is reported, but unconfirmed, that Bill Hardin's No. 1 William Bass, ½ mile from the Victoria townsite recovered several hundred feet of pipe-line oil on a drill-stem test at 3,034-42 ft. This is a new horizon for the field and would no doubt result in many of the wells previously abandoned above 2,700 ft. being deepened.

Approximately 8 miles south of Victoria, Renwar Oil Corp. is making a series of squeeze jobs before testing No. 1 Bayer. The hole is bottomed at 6,485 ft., and casing was recently cemented to test several sands logged by an electrical survey and sidewall cores. Sands to be tested were found at intervals from 5,685 to 5,800 ft.

Another field in the Jim Wells County sector of the Frio-Vicksburg trend looms as the result of drill-stem testing at Arkansas Fuel Oil Co.'s No. 1 Brand, 1½ miles north of the town of Orange Grove. Shaly sand with an oil odor was cored at 4,790-96 ft., and a 6-minute drill-stem test at 4,700-51 ft. developed 450 lb. of working pressure and some water-white distillate.

In the Magnolia City field, Jim Wells County, V. J. Meyers and others were preparing to complete another producer in the deep pay recently opened in the field. No. 1 Garcia tested 1,000 ft. of oil on a 15-minute drill-stem test at 5,705-20 ft., and 5½-in. casing was cemented at 5,719 ft. Casing is to be perforated at 5,715-19 ft.

W. R. Davis & Co. were scheduled to increased drilling operations in the Rincon field, Starr County, following the showing in No. 8-B Slick on the west side of the field. The hole is bottomed at 4,245 ft., and 7-in. casing was cemented at 4,234 ft., after drill-stem tests in three sands at intervals from 3,914 to 4,242 ft. recovered pipe-line oil. Locations for four more wells were made by the company.

In the Sun field, Starr County, Sun Oil Co. was testing No. 3-A Montalvo, approximately 1,400 ft. northwest of production. The well was drilled to 5,007 ft., and 5½-in. casing was cemented at 4,877 ft. Gas and distillate sands were logged at 4,585-93 ft., and 4,786-4,826 ft. Drilling operations in this field are expected to be increased as Sun Oil Co. let contract for five wells.

Wilcox Sand Is Sought

The most interesting development in the district is the widespread search for Tertiary Wilcox production. Drilling is under way on six wells scattered along the Jackson trend extending south from DeWitt County to Webb County in the heart of the Laredo district. Numerous geophysical crews are reported working along this trend and several blocks are being taken which call for the drilling of deep wells. The most advanced operation is Atlantic Refining Co.'s No. 1 Conwell, drilling in shale below 7,200 ft. In the West Tuleta field, Bee County, Mills Bennett Production Co. and Anderson-Prichard Oil Corp.'s No. 2 Robinson is drilling in shale below 6,337 ft. This well is in an area where several weeks ago the company's No. 1 Robinson logged several attractive showings in the Wilcox sand, but due to mechanical trouble no production test was made.

A projected deep test which has just got under way is Sinclair Prairie Oil Co.'s No. 1 Callaghan Land & Cattle Co., northwest of Bruni in the B.S.&F. Survey. Other wells drilling along this trend are located in Bee and Live Oak counties.

Five more producers were being completed in the shallow Adami field, Webb County. Four of the wells were being completed by Arkansas Fuel Oil Co., while Glenda Oil Co. was testing No. 4 Adami in sand at 1,002-06 ft.

In the Balcones fault-line district, H. J. Hollifield's No. 1 D. M. Day, the discovery well of a new chalk field, 2 miles southeast of Luling, Guadalupe County, is being rigged up to pump after the well swabbed at the rate of 5 to 8 bbl. of oil per hour. Locations for several wells are planned for the field, all of which will be drilled by independent operators. Lincoln Petroleum Co. and A. B. Alexander have acquired leases around the well and are to start drilling operations in the near future. Wellington Oil Co. and H. H. Weinert are reported to have made tentative locations on their leases. The discovery well was drilled to the Edwards lime at a total depth of 2,692 ft., and was plugged back and completed in the Austin chalk at 2,415 ft.

Deepening of several wells in the north end of the Saxet field, Nueces County, is anticipated following completion of Tom Graham's No. 9 McGregor-Belk, completed through perforated liner at 7,272-76 ft., flowing 125 bbl. of oil per day through a 7/64-in. choke. With the exception of Hiawatha Oil & Gas Co.'s No. 8-B Smith, which is drilling in a sidetracked hole below 8,800 ft. after plugging back from a total depth of 10,892 ft., activity in this field is confined to deepening or plug-back work on old wells that have gone dead as the result of salt-water encroachment.

SOUTHWEST TEXAS COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Bay-Tex Oil Corp.'s No. 1 Barry-Green and Taylor perforated casing 7,106-13 ft., 119 bbl., 7/32-in. choke. R. B. Bryant and others' No. 1 Cummings, perforated casing 7,424-48 ft., 33 bbl., ⅛-in. choke. Southern Minerals Corp.'s No. 1 Peoples, perforated casing 7,144-53 ft., 102 bbl., ⅛-in. choke.

Bexar County

La Coste field: J. H. Liles' No. 1 Frair, 1,198 ft., gas well.

Caldwell County

Salt Flat field: Texas Co.'s No. 11 Merriweather, 2,495 ft., 25 bbl., pumping.

Calhoun-Victoria Counties

Heyser field: Falcon-Seaboard Oil Co.'s No. 2 Williams, sand 5,471-90 ft., 87 bbl., ⅛-in. choke. Gulf Oil Corp.'s No. 29-B Traylor, sand 5,478-91 ft., 188 bbl., ⅛-in. choke.

Duval County

Cedro Hill field: Magnolia Petroleum Co.'s No. 20 Duval County Ranch Co., sand 1,446-51 ft., 43 bbl., jetting. Driscoll field: Continental Oil Co.'s No. 44-A Driscoll, perforated casing 3,364-70 ft., 124 bbl., ¼-in. choke. Hoffman field: Continental Oil Co.'s No. 11 Collings, sand 2,665-79 ft., 66 bbl., jetting. Tarancahuas field: Cox, Hamon and others' No. 2 Hoffman, sand 2,028-34 ft., 85 bbl., jetting. Cox, Hamon and others' No. 1 Hoffman, sand 2,013-35 ft., 14 bbl. per hour, ⅜-in. choke. Plymouth Oil Co.'s No. 1-C Hoffman, sand 2,016-40 ft., 123 bbl., 7/32-in. choke.

Guadalupe County

Darst Creek field: Magnolia Petroleum Co.'s No. 7 Knodel, 2,621 ft., 66 bbl. of oil and 374 bbl. of water, pumping. Pegg Brothers' No. 1 County Strip, 2,623 ft., 16 bbl. of oil and 184 bbl. of water, pumping.

Hidalgo County

Samfordyce field: Fohs Oil Co.'s No. 2 Sullivan, 3,505 ft., dry and abandoned.

Jim Hogg County

Colorado field: Colorado Octane Co.'s No. 2-C Trevino, sand 3,024-42 ft., 170 bbl., ¼-in. choke. C. Andrade's No. 1-B Trevino, sand 2,998-3,007 ft., 70 bbl., 7/32-in. choke. Kelsey field: Humble Oil & Refining Co.'s No. 46 McGill, 4,756 ft., 124 bbl., 9/64-in. choke.

Jim Wells County

Alfred field: Crosby Drilling Co.'s No. 1 Adams, 4,705 ft., dry and abandoned. V. J. Meyer and others' No. 3 Reynolds, perforated casing 5,614-24 ft., 40 bbl. distillate, 11/64-in. choke. South Alice field: Atlantic Refining Co.'s No. 5-B Bankers Mortgage Co., perforated casing 5,327-34 ft., 75 bbl., ¼-in. choke.

Live Oak County

Oakville field: Simmons Oil Co.'s No. 13-B McGriff, perforated casing 1,827-37 ft., 200 bbl., ¼-in. choke.

Nueces County

Luby field: Humble Oil & Refining Co.'s No. 3 King ranch, 7,389 ft., dry and abandoned. Minnie Bock field: Reed & Cox's No. 3 Parr, perforated casing 3,823½-25½ ft., 82 bbl., 11/64-in. choke. Windsor Oil Co.'s No. 2 Howze, perforated casing 3,813-15 ft., 78 bbl., ⅛-in. choke. Stratton field: Corpus Christi Corp.'s No. 10 Wardner, perforated casing 6,441-52 ft., gas well.

Refugio County

La Rosa field: Rutherford Oil Corp. and Royal Oil & Gas Co.'s No. 4-A Schirmer, perforated casing 5,388-5,406 ft., 70 bbl. oil, plus 25 per cent salt water. Tomoconnor field: Quintana Petroleum Corp.'s No. 8-B Williams, perforated casing 5,880-88 ft., 650 bbl., ¼-in. choke.

San Patricio County

East White Point field: O. W. Killam's No. 7 Taft, sand 5,595-5,612 ft., 141 bbl., ⅛-in. choke. Plymouth Oil Co.'s No. 1 Coleman, perforated casing 5,661-71 ft., 146 bbl., 7/64-in. choke. Republic Natural Gas Co.'s No. 24 Rachal, perforated casing 5,555-60 ft., 139 bbl. ⅛-in. choke. Sinclair Prairie Oil Co.'s No. 5 State, perforated casing 5,610-22 ft., 131 bbl., 22 hours, ⅛-in. choke.

(Continued on Page 77)

Kansas Developments

By
DAL DALRYMPLE

Gas Well in Kingman County Good for 125,000,000 Cu. Ft.

One of the larger gas wells in Kansas was completed last week at Skelly Oil Co.'s No. 7-A Miles, C NE¼ Section 30-27-10w, Cunningham field, Kingman County. Production was computed at 125,000,000 cu. ft. daily by back-pressure method, after acidization. It was bottomed in Viola lime at 3,972 ft. Earlier in the week a 116,000,000-cu. ft. gas well was completed at the same company's No. 9 Ratcliff, C NW¼ Section 30-27-10w, ½ mile west of the Miles.

Cowley County held interest of Kansas operators when a stripper discovery well developed big production after acidizing, and a Bartlesville-sand discovery was completed. Other developments of the week included completion of a connecting well between the Wolf and West Ellinwood areas and extension of the Silica field in Barton County.

Roth Oil & Gas Co.'s No. 3 Gretsinger, C NE¼ Section 15-31-4, was completed last fall for 10 bbl. of oil daily at total depth of 3,456 ft. to open an Arbuckle-lime pool. Recently the crew reworked the stripper, acidized with 500 gal. and it responded by flowing 310 bbl. of oil in 2½ hours. Tankage was being erected preparatory to taking potential test. Nearby wells produce from Bartlesville sand. Location is about 1½ miles northeast of the Hittle pool, where some of the state's bigger oil wells have been completed.

Wildcat Completions

Jock Garden and others' No. 1 Rahn, SW SW SW Section 13-34-5, pool opener in southern Cowley County, was completed early the past week. It topped Bartlesville sand at 2,910 ft., had saturation at 2,915-45 ft.; found Mississippi lime at 2,880-3,370 ft., Arbuckle lime 3,424-35 ft., total depth, plugged back to 2,950 ft. and drilled plug to 2,949 ft. in Bartlesville sand. It flowed 110 bbl. of oil through casing in 68 minutes, then flowed 496 bbl. of oil in 20 hours, with gas estimated at 180,000 cu. ft., and made bomb potential of 1,035 bbl., with no water. Bottom-hole pressure was 1,250 lb. Nearest production is in the Wilson pool, 6½ miles northeastward. Gravity of the oil was 40 degrees; 5-in. casing was set at 2,910 ft., and 2-in. tubing at 2,881 ft.

Troxwell and others' No. 1 Bezdek, NE SW SW Section 32-17-4, wildcat, southwest of Lost Springs pool, Marion County, topped Mississippi lime at 2,395 ft., had a showing of oil and hole full of water at 2,400-10 ft., and was dry and abandoned at 2,501 ft., total depth.

Springrose Drilling Co. and Central Petroleum Co.'s No. 1 Swanson, CNL NW NW Section 18-20-5w, North Bornholdt pool opener in McPherson County, originally completed several weeks ago for initial daily yield of 180 bbl. of oil, was recompleted recently for maximum bomb potential of 3,000 bbl. It was deepened from 3,343 ft. in chat, topped at 3,304 ft., to 3,348 ft., and flowed 461 bbl. of oil in 5 hours, the increase following deepening.

Mitchell Drilling Co.'s No. 1 Batchelder, C E½ E½ SW Section 27-30-6, Cowley County wildcat, recently was dry and abandoned in Arbuckle lime at 3,320-50 ft., total depth.

Barton County

Shell Oil Co., Inc.'s No. 1 Barth, CNL SW¼ Section 15-17-11w, Kraft pool, Barton County, was acidized and completed for daily potential of 1,098 bbl. of oil from Arbuckle lime at total depth of 3,293 ft.

Black & Marshall's No. 1 Weber, NE NE SE Section 14-16-12w, Feltes pool, was completed for 24-hour potential of 2,718 bbl. of oil at total depth of 3,350 ft. in Arbuckle lime.

Derby Oil Co.'s No. 3 River Bed, SE cor. Section 10-20-11w, Silica field, made initial daily potential of 238 bbl. of oil at total depth of 3,289 ft. in Arbuckle lime.

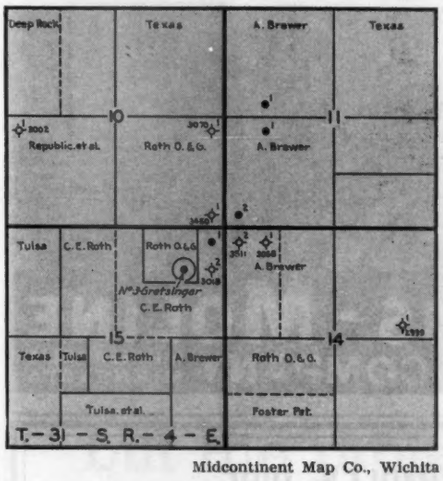
Phillips Petroleum Co.'s No. 1 Petz, CSL SE NE Section 7-20-11w, Ellinwood area, was acidized and completed for 3,000 bbl. of oil daily, at total depth of 3,324 ft. in Arbuckle lime. It extends the Silica-Ellinwood pool ½ mile westward and indicates connection with the West Ellinwood area.

Gulf Oil Corp.'s No. 1 Howard, CNL NE SW Section 8-20-11w, was acidized and made initial daily potential of 416 bbl. of oil at total depth of 3,314 ft. in Arbuckle lime.

Ash, Hershey & Crown Petroleum Co.'s No. 1 Ernsting, CWL NE SE Section 1-20-12w, connecting well between the Wolf and West Ellinwood pools, was completed at total depth of 3,375 ft. in Arbuckle lime for 191 bbl. of oil daily after acid treatment.

Texas Co.'s No. 1 Marchand, SW cor. Section 13-20-12w, Clawson pool, was completed for initial daily potential of 2,271 bbl. of oil after acid treatment in Arbuckle lime at 3,358 ft., total depth.

Derby Oil Co.'s No. 9 Esfeld, SW SW NW Section 29-16-11w, Prusa pool, had basal sand at 3,297-3,314 ft., total depth, made initial potential of 724 bbl. of oil and on retest by drawdown made potential of 1,751 bbl.



Midcontinent Map Co., Wichita

Roth Oil & Gas Co.'s No. 3 Gretsinger, Section 15-31-4e, completed last fall as a 10-bbl. Arbuckle-lime producer, was acidized last week and flowed 310 bbl. of oil in 2½ hours, apparently assuring another rich pool for Cowley County. Nearby wells produce from Bartlesville sand

Barnsdall Oil Co.'s No. 2 Rous, C S½ NE SW Section 28-16-11w, found Arbuckle lime at 3,344 ft., total depth 3,347 ft., acidized and made maximum potential of 3,000 bbl. of oil.

Stanolind Oil & Gas Co.'s No. 22 Panning, CNL NW SE Section 10-20-11w, Silica field, was dry and abandoned in Arbuckle lime topped at 3,298 ft., total depth 3,337 ft.

Black & Marshall's No. 1 Dolechek, C N½ NW NE Section 24-16-12w, wildcat, 1½ miles southeast of Cole Creek pool, was a cellar. Stanolind Oil & Gas Co.'s No. 5 Thomas, C E½ E½ SW Section 35-19-1w, and Sharon Drilling Co.'s No. 1 Noe, NE cor. Section 14-20-11w, were locations. Barnsdall Oil Co.'s No. 3 Rous, C N½ SE SW Section 28-16-11w, was moving in material. B. B. & M. Co.'s No. 2 Esfeld, C S½ NW SE Section 28-16-11w, had dug pits. Texas Co.'s No. 1 Janssen, C E½ NE SE Section 31-16-11w, south of Krier pool, set surface casing. Shell Oil Co., Inc.'s No. 7-B Bitter, C N½ N½ SE Section 6-16-13w, was a location.

McPherson County

Stelbar Oil Corp.'s No. 1 Jones, CNL NE NW Section 19-17-1w, Roxbury pool, McPherson County, was completed for initial potential of 300 bbl. of oil daily at total depth of 2,687 ft. in chat. F. S. Williams' No. 2-A Lewis, CSL SE¼ Section 30-19-1w, Ritz-Canton pool, was bottomed at 2,990 ft. in chat and made initial daily potential of 179 bbl. of oil.

L. W. Prunty and others' No. 1 Jones B, NW NW SW Section 32-21-1w, Graber pool, found Hunton lime at 3,277-95 ft., total depth, was acidized, pumped 238 bbl. of 41-gravity oil in 8 hours and made daily potential of 714 bbl.

Mid-Continent Petroleum Corp.'s No. 1 Peterson, C W½ SW SW Section 29-20-5w, Bornholdt pool, drilled chat at 3,337-63 ft., total depth, flowed 164 bbl. of 37-gravity oil in 2 hours, and was completed for maximum allowable potential of 3,000 bbl. of oil daily. Ten-inch pipe was set at 206 ft., 7-in. at 3,345 ft.

Continental Oil Co.'s No. 4 Mattson, C N½ NW NW Section 31-20-5w, topped chat at 3,294 ft., had pay at 3,311-56 ft., total depth, was shot with 90 qt., pumped 144 bbl. of oil in 8 hours and made daily potential of 342 bbl. Ten-inch casing was set at 175 ft., 7-in. at 3,296 ft.

New work in McPherson County: George H. Bunting's No. 1 Zietlan, SW NE SE Section 18-17-1w, ½ mile east of the Roxbury pool, location; Central Petroleum Co. and others' No. 2 Swanson, C S½ NW NW Section 18-20-5w, rigging up rotary; Mid-Continent Petroleum Corp.'s No. 2 Peterson, C E½ SW SW Section 29-20-5w, building rotary rig.

In Ellsworth County Aylward Production Co.'s No. 1 Boye, C W½ NW SW Section 9-16-10w, outpost in the Stoltenberg area, was moving in material. Duwe & Farris' No. 1 Adamek, C S½ NW NW Section 17-16-10w, was building rotary rig. Atlantic Refining Co. and others' No. 1-E Stoltenberg, C N½ NW SE Section 27-16-10w, was a location.

Estimated Daily Production

Estimated daily production for Kansas for the week ended February 10, and for the preceding week was as follows:

	Barrels	
	Feb. 10	Feb. 3
Oxford City	800	800
Burrton	9,250	9,300
Ritz-Canton	4,200	4,350
Graber	2,500	3,500
Hollow-Nikkel	1,600	1,650
Lerado	800	550
Voshell	1,600	1,650
Wellington	2,000	2,050
Ellsworth County:		
Lorraine	1,950	1,250
Other pools	1,680	1,305
Rice-Barton counties:		
Bloomer	3,200	4,700
Chase	5,500	4,550
Geneseo	6,050	6,450
Raymond	800	500
Silica	11,700	13,050
South Silica	2,000	2,550
Keesling	200	950
Wherry	3,600	4,650
Miscellaneous Rice	5,505	5,660
Miscellaneous Barton	6,385	6,585
Trapp district	11,650	11,950
Balance Russell County	21,100	20,500
Sedgwick County	3,200	3,300
Ellis County:		
Bemis	6,800	7,700
Miscellaneous	5,870	5,270
Kingman County	660	850
Stafford County	7,725	7,115
Greenwood County	8,000	7,900
El Dorado	7,300	7,250
Other fields	31,025	33,715
Total Kansas	174,650	181,600

Russell County

Completions of the past week in Russell County included Cities Service Oil Co.'s No. 3 Hennessy, SE SE SE Section 26-15-14w, Trapp pool, made daily potential

of 2,864 bbl. of oil at total depth of 3,332 ft. in Arbuckle lime; and Gulf Oil Corp.'s No. 11 Mollie, CWL SE¼ Section 25-15-14w, made daily potential of 1,150 bbl. of oil from Arbuckle lime at 3,319 ft., total depth. Other recent completions in Russell County:

Hayes, Potter & Cramm's No. 1 Vonfeldt, NW cor. Section 6-15-14w, which extended the Big Creek pool ¾ mile southeastward, had Lansing lime at 2,973-3,075 ft., total depth, acidized, pumped 206 bbl. of 32-gravity oil in 8 hours and made potential of 610 bbl. daily. It was drilled with cable tools.

Cities Service Oil Co.'s No. 8 Bender-A, C N½ N½ NW Section 25-15-14w, Trapp field, rotary tools, Arbuckle pay 3,323-27 ft., total depth 3,329 ft., acidized, daily potential 1,131 bbl. of 39-gravity oil.

Same company's No. 5 Podszus, SW cor. Section 25-15-14w, rotary tools, Arbuckle lime 3,319 ft., total depth 3,325 ft., acidized, potential 1,244 bbl. of 39-gravity oil daily.

W. C. McBride, Inc.'s No. 5 Jellison, NW NW SE Section 19-13-14w, Atherton pool, cable tools, Arbuckle lime 3,258-70 ft., total depth, acidized, depthograph potential 845 bbl. of 31-gravity oil daily.

Skelly Oil Co.'s No. 10 Opdycke, C S½ SE NW Section 29-14-13w, Hall pool, Lansing lime, 2,895 ft., pay 2,926 ft., total depth 2,940 ft., acidized, pumped 313 bbl. of oil and 28 bbl. of water in 8 hours, potential 940 bbl. of oil, with 84 bl. of water daily. Gravity of the oil was 38.3°.

Hartman & Blair's No. 3-A Gurney, C W½ NW NW Section 23-14-14w, was building rig. Crown Petroleum Co. and others' No. 3-B Krug, SW SW NW Section 26-14-14w, had dug pits.

Ellis County

Cities Service Oil Co.'s No. 8 Colahan, SE NW SW Section 24-11-17w, Bemis field, Ellis County, was acidized and made maximum allowable potential of 3,000 bbl. of oil daily at total depth of 3,548 ft. in Arbuckle lime. Central Petroleum Co.'s No. 5 Hadley, CSL NW SW Section 12-11-18w, Burnett pool, bottomed at 3,349 ft., in Arbuckle lime, made maximum allowable potential of 3,000 bbl. of oil. Earl F. Wakefield's No. 3-A Burnett, SE SE SE Section 1-11-18w, was completed for initial daily potential of 3,000 bbl. of oil at total depth of 3,462 ft. in Arbuckle lime.

Other recent Ellis County completions: Shell Oil Co., Inc.'s No. 31 Rumsey, SW NE NE Section 23-11-17w, Bemis field, Arbuckle lime 3,427-41 ft., total depth, swabbed 220 bbl. of 33.5-gravity oil in 4 hours, maximum potential 3,000 bbl. Cities Service Oil Co.'s No. 7 Colahan, NE SW NW Section 24-11-17w, Arbuckle pay 3,707-13 ft., total depth, acidized, maximum potential of 3,000 bbl. of 33.5-gravity oil daily. Lario Oil Co.'s No. 1 Weisner, C N½ SW SW Section 11-12-18w, Walter area, Arbuckle lime 3,678-82 ft., total depth, acidized, potential 1,695 bbl. of 28.5-gravity oil daily. Skelly Oil Co.'s No. 2 Kempe, NE NW NE Section 12-11-18w, Burnett pool, Arbuckle lime 3,423-30 ft., total depth, pumped 94 bbl. of 32-gravity oil in 7 hours, acidized, pumped 48 bbl. in 4 hours, maximum potential 3,000 bbl.

Darby Petroleum Corp.'s No. 7 Jorgenson, C N½ SE SW Section 7-11-17w, was rigging up rotary. Lario Oil & Gas Co.'s No. 2 Koerner, C S½ NE SW Section 11-12-18w, was rigging up rotary.

Rooks County

Republic Natural Gas Co.'s No. 1 Ridler, C E½ SE SE Section 36-10-18w, a recent completion in the Rooks County sector of the Burnett pool, found Arbuckle lime at 3,491-98 ft., total depth, and made maximum daily allowable potential of 3,000 bbl. of 32-gravity oil.

Knab Oil Co.'s No. 1 Brown, C N½ SW SE Section 14-9-16w, was a cellar.

Rice County

Vickers Petroleum Co.'s No. 4 Roesler, CEL NW¼ Section 5-18-10w, Bloomer field, Rice County, was bottomed at 3,212 ft. in Arbuckle lime, acidized and made initial daily potential of 1,664 bbl. of oil. Cities Service Oil Co.'s No. 2 Gossman, CEL SW SE Section 5-21-7w, Wherry pool, had initial yield of 32 bbl. of oil daily from conglomerate at total depth of 3,411 ft.

Recent Rice County completions included: Bishop Oil Co.'s No. 2 Cramm, NW NE SW Section 15-19-9w, Chase field, Arbuckle lime, 3,206-30 ft., total depth; acidized, pumped 46 bbl. of 42.6-gravity oil and 17 bbl. of water in 4 hours and had minimum potential rating of 15 bbl. of oil daily. Meridian Oils, Inc.'s No. 2 Johnson, C N½ NW SE Section 31-20-7w, Wherry pool, conglomerate 3,315-20 ft., total depth, flowed 301 bbl. of 36.5-gravity oil in 8 hours, daily potential 904 bbl. of oil. Brown-Willard Oil Co.'s No. 2 Renollet, SW NE SE Section 36-20-8w, conglomerate 3,314-17 ft., total depth, flowed 1,002 bbl. of oil in 8 hours, potential 3,005 bbl.

New operations in Rice County: Shell Oil Co., Inc., and others' No. 4 Fobias, NE SE NE Section 6-19-9w, moving in material; C. L. Carlock's No. 2 Renollet, NW SE NE Section 36-20-8w, location; Phillips Petroleum Co.'s No. 1 Wesley, C W½ NW SW Section 35-19-10w, set casing and waiting on cement at 241 ft.; Mission Oil Corp.'s No. 9 Habiger, C N½ NW NW Section 5-18-10w, rigging up rotary

Stafford County

Deep Rock Oil Corp.'s No. 1 Turner, C S½ SW SW Section 2-24-11w, Zenith field, Stafford County, topped Misener sand at 3,684 ft., Viola lime 3,702 ft., total depth 3,748 ft., acidized, flowed 135 bbl. of 42-gravity oil in 2 hours through 1-in. choke, and was completed for maximum potential of 3,000 bbl. of oil.

Cowley County

Texas Co.'s No. 3 Ross, NW SE SE Section 21-31-4, Hittle pool, Cowley County, was completed for maximum allowable potential of 3,000 bbl. of oil daily at total depth of 3,301 ft. in Arbuckle lime.

Jock Garden and others' No. 1 Waldschmidt, SE SE NE Section 14-34-5, was a cellar.

Butler-Greenwood County

Cities Service Oil Co.'s No. 19 Finney, SE NW SE Section 4-26-5, El Dorado field, Butler County, a cable tool test, topped Viola lime at 2,551 ft., had Wilcox sand at 2,566 ft., total depth, and pumped 17 bbl. of oil daily. Rex & Morris' No. 5-A DeMoss, NE SE SW Section 5-28-7, was drilling below 260 ft.

Shaffer & Howell's No. 8 Lander, C E½ NW SW Section 16-23-13, Virgil area, Greenwood County, topped Mississippi lime at 1,695 ft., had pay at 1,700-25 ft., total depth, was shot and pumped 15 bbl. of oil and

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15 bbl. of water in 24 hours. Arch Miller's No. 1 Mullinax, NW SW SE Section 12-27-10, west of Coimax pool, was a location. Reed and others' No. 1 Dove, SW NE NE Section 17-28-11, south of Severy pool, spudded.

Kingman County

Skelly Oil Co.'s No. 7 Miles. A, C NE¼ Section 30-27-10w, Cunningham field, Kingman County, topped Viola lime at 3,953 ft., was bottomed at 3,972 ft., acidized and gaged 87,225,000 cu. ft. of gas daily. On back-pressure test, it gaged 125,000,000 cu. ft. daily.

Same company's No. 9 Ratcliff, C NW¼ Section 30-27-10w, ½ mile west of the Miles well, gaged 116,000,000 cu. ft. of gas daily after acidizing in Viola lime at total depth of 3,982 ft. Numerous old wells in the Cunningham area are being acidized to increase production and protect holders of adjoining property.

Forest City Basin Activity

ST. JOSEPH, Mo., Feb. 12.—Activity in the Forest City basin, almost at a standstill in recent weeks because of cold weather, is showing signs of revival with indications that several new tests will be started and old tests resumed soon.

Pawnee Royalty Co.'s No. 1 Meyers, C NW NW Section 24-1n-15e, Falls City area, Richardson County, Nebraska, was reported drilling ahead toward Wilcox sand after causing considerable excitement last week when a showing of oil was found in Viola lime, thought to have been topped at 3,183 ft. The oil showing was reported in the first 10 ft. of the lime. The enthusiasm cooled when sulfur water was found at about 62 ft. in the lime. Operators have withheld definite information and figures are approximate. Wilcox sand is thought to lie about 300 ft. below top of the Viola. The Falls City discovery well was reported shut in for tankage.

T. E. Baldwin was due to drill plug soon at his No. 1-A Johnson, NW NE NE Section 21-65-15w, Schuyler County, northeastern Missouri. It was bottomed at 1,069 ft. in Hunton lime, plugged back to 1,040 ft., with 7-in. casing cemented at 1,030 ft. It was reported showing oil when operations were suspended to set casing recently. Several Missouri tests that have been shut down were due to resume.

Bruce Dodson's No. 1 fee, C NW NE Section 17-47-30w, Jackson County, Missouri, had Burbank sand at 472-80 ft. and was dry and abandoned at 500 ft., total depth.

Hulse & Christopher's No. 1 Wiston, Section 22-49-32w, near Kansas City, Jackson County, was dry and abandoned at 510 ft., total depth.

L. E. Mummert and others' No. 1 Riskert, NW NE SE Section 26-54-20w, Chariton County, and A. A. Ash and others' No. 1 Alexander, C SE¼ Section 14-55-13w, Randolph County, Missouri, locations, were reported abandoned.

E. H. Lawhon and others were moving in material at No. 1 Gottschall, C SE SE Section 18-59-32w, wildcat in DeKalb County, Missouri.

Southwest Texas Fields

(Continued from Page 74)

Victoria County

McFaddin field: Barnsdall Oil Co.'s No. 1-B McFaddin, sand 4,403-16 ft., 106 bbl., ¼-in. choke. Victoria field: George Greer's No. 1 King, perforated casing 2,544-50 ft., gas well. Loma Oil Co.'s No. 1 Schier, 2,580 ft., dry and abandoned. J. W. Sewell's No. 1 Fox, 5,250 ft., dry and abandoned. Stolley-Simms' No. 1 Vogt, 2,715 ft., dry and abandoned. Trinity Drillers, Inc.'s No. 1 Moeller, perforated casing 2,554-57½ ft., 28 bbl., ¼-in. choke.

Webb County

Volpe field: Magnolia Petroleum Co.'s No. 20 Volpe-Benavides, sand 2,458-66 ft., 240 bbl., ½-in. choke. West Cole field: V. G. Schimmel's No. 2 Benavides, 2,373 ft., 40 bbl., pumping.

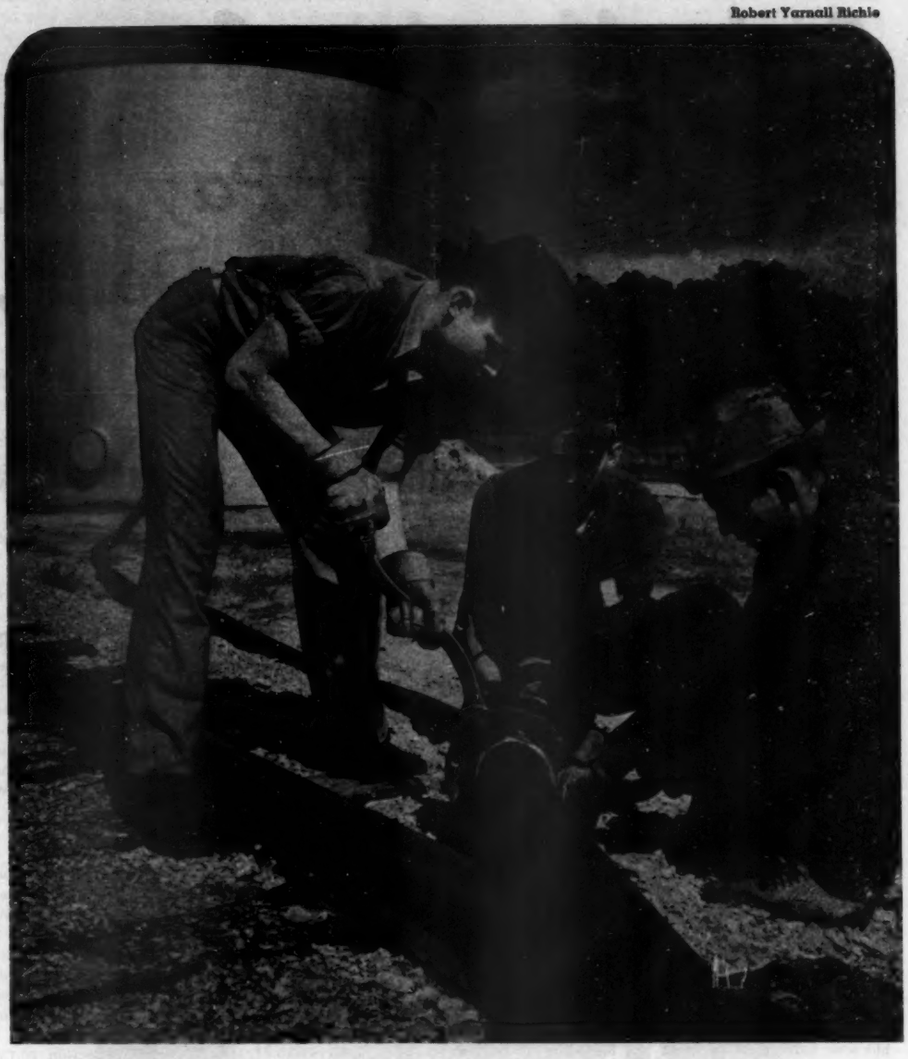
Williamson County

Byersville field: R. Q. Silverthorne's No. 1 Zieschang, 997 ft., dry and abandoned.

Zapata County

Escobas field: Dulup Oil Co.'s No. 4 Garcia, 1,223 ft., dry and abandoned.

Robert Yarnall Richie



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Rocky Mountain Area

By
T. R. INGRAM

Deeper Pay Expected on the Mahoney Dome, in Wyoming

DENVER, Colo., Feb. 12.—High officials of western public-land states, facing a situation which threatens to curtail if not end prospecting on the public domain, are joining with Mid-Continent and Texas oil interests in opposing the Cole bill, and in return are seeking their cooperation in their fight for relief from present drastic restrictions.

Colorado had two completions in the Rangely field in the Equity Oil Co.'s No. 6 Gray and No. 3 Neal, for 75 and 68 bbl., initially, respectively.

Wyoming Public Service Commission granted a certificate to the Northern Pipe Line Co. for a 100-mile pipe line from Casper to Billy Creek to take care of natural-gas requirements in Sheridan and Buffalo. A discovery in the Tensleep appears imminent in the Sinclair-Wyoming Oil Co.'s No. 4-E on West Ferris, Carbon County. Lance Creek had one completion, a Sundance-sand well for the Continental Oil Co.'s No. 3 Rodeo O.P.C.-4, which extends the Sundance-sand pool ½ mile to the east. It was rated at 168 bbl.

Montana had only one completion, a 200-bbl. well in Lance Creek, for the Santa Rita Oil & Gas Co., in its No. 2 Rasmussen.

NORTHWEST NEW MEXICO

The Continental Oil Co. and Lafayette M. Hughes, of Denver, offering a joint bid, were the highest bidders on three tracts of Indian land on the Dulce, Monero, and Garcia domes in the Jicarilla Apache Indian Reservation in Rio Arriba County at the auction sale at Dulce on February 1. The bid on Tract No. 1, 4,322 acres on the Dulce dome, was a bonus of $6,786. On Tract No. 2, 640 acres on the Monero dome, the bonus bid was $678, and on Tract No. 3, 482 acres on the Garcia dome, was $510. The acreage offered was that located within the reservation, the northern boundary of which intersects the Dulce and Monero structures. The same interests already have large holdings on the north half of these structures. The sale is subject to the approval of the secretary of the interior. A test will be started as soon as the details are completed.

Bernalillo County

Norins Realty Co., Inc.'s No. 2 North Albuquerque, NE SE NW Sec. 19-11n-4e. S.D. 4,710 ft.; (C.D.).
Norins Realty Co., Inc.'s No. 2 Pajarito, Sec. 22-9n-1e. S.D. 2,000 ft.

San Juan County

The Atlantic Refining Co. is reported acquiring leases in the Blanco district in eastern San Juan County following extensive geophysical surveys the past summer. One specific property mentioned as having been purchased is that of the Dorothy Oil Co., successor to the Huntington Park Oil Co., which drilled a deep test in the SE SE Section 29-30n-9w in 1927. This well went to 4,582 ft. in the Mesa Verde formation. At that depth it had a string of tools and two bailers in the hole, but sprayed considerable oil while fishing was in progress. It was unable to clear the hole and was plugged back to a sand in the top of the Mesa Verde at 4,243 ft. where it was completed for 1,000,000 cu. ft. of gas per day. A second well in the district was drilled by the Union Oil & Mining Co. in the SE SW Section 8-29n-9w. It was likewise unable to make a test at 4,030 ft. on account of bad hole and was plugged back to 3,250 ft. where it pumped 86 bbl. in 16 days and then was abandoned.

The Continental Oil Co.'s No. 100 Rattlesnake, the third test to the Pennsylvanian drilled by that company on the Rattlesnake dome, swabbed some oil with water after perforating the 7-in. at 6,724-29½ ft., and then cemented back from 6,801 ft. to 6,672 ft. and is preparing to perforate and test again.

The Continental Oil Co.'s No. 102 Rattlesnake, SE SE SW Section 12-29n-19w, south end of the Rattlesnake field, was completed in the Dakota at 845 ft. for 59 bbl. of oil and no water.

Continental Oil Co.'s No. 103 Rattlesnake, SW SE SW Sec. 12-29n-19w. Loc.; (first report).
Angel Peak Oil Co.'s No. 9 fee, C NE NW Sec. 24-28n-11w. Drlg. below 500 ft.
Continental Oil Co.'s No. 100 Rattlesnake, SE NW NE Sec. 2-29n-19w. T.D. 7,407 ft.; P.B. to 6,676 ft.; W. O.C.

San Miguel County

Ben E. Keith's No. 1-X McCune, SW SE SW Sec. 32-16n-12e. Drlg. below 900 ft.

Socorro County

Joiner Oil Corp.'s No. 1 Belen Grant, SE NW Sec. 16-3n-1e. T.D. 600 ft.; prep. to cmt. 10-in. on bttm.

SOUTHEAST NEW MEXICO COMPLETIONS

Completions of the past week in southeastern New Mexico included a wildcat failure in Chaves County, 2 oil wells and 2 failures in Eddy County, and 10 oil wells and a gas well in Lea County.

New work included a wildcat in Luna County, and eight tests in Lea County and six in Eddy County. The new wildcat was O. D. Berry's No. 2 Berry, SE SE SW Section 33-22-10w, a location.

Eddy County

Gordon M. Cone's No. 1 Guy, NE NW SE Section 9-18-29, Loco Hills pool, topped sand at 2,519 ft., total depth 2,498 ft., shot with 90 qt., flowed 72 bbl. of oil daily, 2-in. tubing. Harvey, Sergent & Rutter's No. 1 Kistler, SW cor. Section 9-18-30, salt water 2,990-95 ft. and 3,007 ft., total depth 3,202 ft., dry and abandoned. R. J. Johnson's No. 1 Travis, SE NW NW Section 26-17-27, Red Lakes area, water 550-60 ft., dry and abandoned at 561 ft.

Sam Sanders' No. 1 fee, SE SE NW Section 25-15-29, Eddy County wildcat, found sulfur water at 3,820-30 ft., total depth, and was abandoned.

L. R. Manning and others' No. 1 McClay, NE NW NE Section 21-18-30, Shugart area, had pay at 3,004 ft., total depth 3,133 ft., was shot with 80 and 20 qt., pumped 24 bbl. of oil daily through 2-in. tubing.

Lea County

Skelly Oil Co.'s No. 2-R State, C SE NW Section 36-16-36, Lovington pool, Lea County, pay at 4,764-5,025 ft., acidized 2,000 gal., flowed 100 bbl. of oil in 24 hours through 17/64-in. choke on 2-in. tubing.

Barney Cockburn's No. 6-B Baish, C SE NW Section 27-17-32, Maljamar field, topped pay 3,835 ft., total depth 3,905 ft., shot with 130 qt., flowed 300 bbl. of oil daily through 2-in. tubing. Magnolia Petroleum Co.'s No. 52 State-Bridges, C NE NE Section 27-17-34, Vacuum pool, pay at 4,483-4,640 ft., total depth, shot with 500 qt., pumped 45 bbl. of oil in 5½ hours through 2½-in. tubing.

Texas Co.'s No. 20 Lieu Lands, C SE NW Section 20-20-37, Monument field, pay at 3,779-3,835 ft., total depth, flowed 184 bbl. of oil in 24 hours through 2-in. tubing, naturally.

Ohio Oil Co.'s No. 14 State-McDonald, NE NW NW Section 13-22-36, West Eunice area, flowed 222 bbl. of oil naturally through 2-in. tubing in 6 hours, with 280,000 cu. ft. of gas. Pay was found at 3,690-3,800 ft., total depth.

Neville G. Penrose's No. 2 Mattern, SW cor. Section 7-22-37, Penrose pool, had pay at 3,660-3,740 ft., total depth, flowed 426 bbl. of oil naturally through 2-in. tubing in 6 hours. Gulf Oil Corp.'s No. 2 Brunson, C SW NE Section 10-22-37, topped pay 3,630 ft., total depth 3,727 ft., acidized with 2,000 gal., shot with 220 qt., flowed 23 bbl. of oil daily through 2-in. tubing, with 463,000 cu. ft. of gas.

J. M. Rush's No. 1 Mattix, C SE NW Section 10-24-37, Mattix pool, pay at 3,332-3,568 ft., total depth, shot with 715 qt., flowed 240 bbl. of oil through 2-in. tubing in 24 hours. Continental Oil Co.'s No. 8 Jack B-27, C W½ NE NE Section 27-24-37, pay at 3,380-3,538 ft., total depth, shot with 400 qt., flowed 81 bbl. of oil in 3 hours through 2-in. tubing, with 745,000 cu. ft. of gas.

Texas Co. and others' No. 1-Y State, CWL SE NW Section 16-26-37, Rhodes area, flowed 13,700,000 cu. ft. of sweet gas, naturally, with 375 lb. flowing pressure on casing. Pay was found at 3,040-3,140 ft., total depth.

Skelly Oil Co.'s No. 2-L State, SW SE NW Section 2-25-37, Langlie pool, had pay at 3,365-3,421 ft., total depth, flowed 168 bbl. of oil in 24 hours through 2-in. tubing, with 3,000,000 cu. ft. of gas.

Eddy County

Addison's No. 1 Sullivan, 600 ft. from N and E lines, Sec. 29-18-31. P.O.P. 3,573 ft.; pmpd. est. 60 B.O.P.D.
Knox & Brewer's No. 1 Fred Hess, 330 ft. from N and W lines, Sec. 21-16-29. C.&P.
Everts' No. 1 Greer, SE cor. Sec. 31-16-31. T.D. 3,854 ft.; C.O.
Everts & Moran's No. 1 Ranuz, NE NW Sec. 18-23-26. T.D. 375 ft.; S.D.
L. R. Manning's No. 1 Patton-McClay, 330 ft. from N and 1,650 ft. from E lines, Sec. 21-18-30. T.D. 3,133 ft.; est. 20 B.O.P.D., pumping and flowing.
G. A. Grober's No. 1 Wright, 1,980 ft. from N and W lines, Sec. 25-18-29. Tstg. S.O.&G. 1,382 ft.; est. 10 B.O.P.D.; S.D.O. 1,711 ft.
Mac T. Anderson's No. 1 L. J. Root, 660 ft. from S and W lines, Sec. 27-9-30. Flwd. est. 20 B.O.P.D.; prep. shoot 2,512-57 ft.; flwd. 25 B.O.P.D. through csg.; tstg.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. T.D. 790 ft.; S.D.
L. E. Elliott's No. 1 Elliott, SE SE Sec. 24-18-29. S.S.O. 3,255-75 ft.; S.D.O. 3,435 ft.
J. W. Elliott's No. 1 Cannon (O.W.D.D.), C SW SE Sec. 4-19-30. S.D.O. 3,421 ft.; sulf. wtr.
Trojan Oil Co.'s No. 1 Grant, SW SW NE Sec. 33-20s-25e. S.O. 1,530 ft.; S.D.R. 1,580 ft.
Dodson Drlg. Co.'s No. 1 State, 2,310 ft. from N and 330 ft. from E lines, Sec. 17-16-29, ½ mi. N of Nolen's No. 1 lies discovery well. C.&P.
Dodson Drlg. Co.'s No. 1 A. H. McElreath, 330 ft. from S and W lines, Sec. 3-16-29, 2½ mi. NE of Nolen's pool opener. Est. 175,000 cu. ft. gas; S.D.O. 2,750 ft.
Anderson's No. 1 Hess, 330 ft. S and W lines, Sec. 10-16-29. Spdr. on ground.
Anderson's No. 1 Neeson, 330 ft. from W and 2,310 ft. from N lines, Sec. 4-16-30. Drlg. 2,040 ft.
C. B. Buck's No. 1 State, 330 ft. from S and 4,290 ft. from E lines, Sec. 31-16-29. S.D.R. 2,652 ft.
Carper Drlg. Co.-Tallmadge's No. 2-A Miles-State, 2,310 ft. N and E lines, Sec. 32-17-30. Drlg. 760 ft.
Clark & Cooper's No. 1 Ward, 1,980 ft. S and E lines, Sec. 20-16-27. T.D. 945 ft.; set 7⅝-in.
Dave Elder's No. 1 Hess, 1,650 ft. from N and 330 ft. from W lines, Sec. 21-16-29. T.D. 2,720 ft.; fsg.
A. E. Frazier's No. 1 H. E. Yates, 330 ft. from N and 1,650 ft. from E lines, Sec. 6-20-27. S.D. 817 ft.
Frederick's No. 1 Reed, 1,980 ft. from S and W lines, Sec. 28-24-38 (O.W.D.D.). Est. 1,500,000 cu. ft. gas at 2,300 ft.; W.O.C. 2,893 ft.
Harvey et al's No. 1 Kistler, 330 ft. from S and W lines, Sec. 9-18-30. Sulf. wtr. 3,202 ft.; P.B. 3,982 ft.; C.O. after shot.
Jack Harris' No. 1 Josey, 370 ft. from S and 2,310 ft. from W lines, Sec. 20-20-23, M.I.M.
Wilder's No. 1 Young, 1,650 ft. from N and W lines, Sec. 23-16-29. Drlg. 2,035 ft.
Sam Montgomery's No. 1 Kaltenback, 330 ft. from N and W lines, Sec. 24-16-27. Drlg. 1,460 ft.
Sam Weiner's No. 1 Hess, 330 ft. from S and E lines, Sec. 9-16-29. S.D.R. 1,925 ft.
Thomas & Bowers' No. 1 H. W. Etz, 2,310 ft. from N and 330 ft. from W lines, Sec. 13-16-30. W.O. csg. 2,383 ft.

Chaves County

Comanche Drlg. Co.'s No. 4 Sloop & Purcell, 510 ft. from N line and 330 ft. from E line, Sec. 5-11-26. Drlg. 795 ft.
Farrar-Jones-Cunningham's No. 1 Samples, 330 ft. from S and E lines, Sec. 1-7-27. Spd. and S.D.
H. E. Yates' No. 1 Johnson, 660 ft. from N and 1,980 ft. from W lines, Sec. 24-15-28. W.O.C. 3,285 ft., T.D.; bridge 1,700 ft. and cmtd.; P.B. 1,700 ft.; S.D.
G. H. Cowden's No. 1 Brunson, 330 ft. N and W lines, Sec. 27-9s-30e. Drlg. 200 ft.
T. S. Stanfield's No. 1 Bogle, 330 ft. N line and 2,310 ft. E line, Sec. 27-13-25. Drlg. 1,000 ft.

Dona Ana County

Picacho O. & G. Co.'s No. 12 Armstrong, Sec. 15-23s-1w. W.O. csg. 2,620 ft.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. T.D. 2,785 ft.; S.D.O.

Luna County

O. D. Berry's No. 1 Berry, SE SE SW Sec. 33-22s-10w. S.D.O. 1,000 ft.

Lea County

Culbertson & Irwin's No. 1 Lankford, 660 ft. from N and 1,980 ft. from W lines, Sec. 25-23-36. Gas from 2,955-3,007 ft.; increased to 75,000,000 cu. ft. per day

at 3,030 ft.; T.D. 3,618 ft.; P.B. 2,970 ft.; milling on iron.
J. D. Barefield's No. 2 Stroup, 1,980 ft. from N and E lines, Sec. 12-18-32. Drlg. 1,035 ft.

Otero County

Ernest's No. 1 Ernest, Sec. 20-25-7. Drlg. 2,513 ft.
Otero Oil Co.'s No. 1 State, SE NW Sec. 5-22-10. S.D. 736 ft.

Socorro County

Joiner Oil Corp.'s No. 1 Belen Grant, 2,310 ft. N and W lines, Sec. 16-3-1. Loc.

COLORADO

El Paso County

F. F. Hintze et al's No. 1 State, CEL SE SE Sec. 16-11s-60w. Drlg. below 895 ft.

La Plata County

Nick Spatter's No. 1-X Bryce, C SW SW Sec. 31-33n-9w. Drlg. below 2,722 ft. in dry hole; believed to be through Picture Cliff form.

Montezuma County

McElmo Oil Co.'s No. 1 West, NE NW NE Sec. 31-36n-17w. Drlg. 5,285 ft. in blk. L.&sh.; S.S.O.; est. 2,000,000 cu. ft. gas at 5,241 ft.

Park County

South Park Oil Co.'s No. 1 Lemar, NE NE SE Sec. 34-11s-75w. T.D. 7,172 ft.; thawing out wtr. lines; 42° below zero.

Moffat County

Great Divide Pet. Co.'s No. 1 Wyatt, SE¼ Sec. 4-6n-92w. S.D. 724 ft.; 10-in. frozen at 650 ft.; will res. as soon as weather conditions improve.

Routt County

L. C. Craig-E. L. Moore's No. 1-X Erwin, C SW NE Sec. 33-7n-85w. T.D. 2,220 ft.; trying to recmt. 6⅝-in. at 2,055 ft.

Rio Blanco County

The Equity Oil Co.'s No. 6 Gray, SE SE SE Section 24-2n-103w, Rangely field, was completed in the Mancos at 1,293 ft., total depth, for 75 bbl. the first 24 hours from sand at 1,090-95 ft. and 1,265-70 ft.

Same company's No. 3 Neal, SE SW NE Section 25-2n-103w, was completed at 1,183 ft., for 68 bbl. the first 24 hours from sand at 1,149-54 ft.

Washington County

The Thurman Oil Trust's No. 1 Ruby, near Thurman, is attracting attention as it nears the objective horizon. It is drilling below 1,335 ft. and has had several gas shows. The heaviest was at 1,100-1,200 ft. No test was made and as the horizon was drilled with rotary tools it is believed the full extent of the showing was not revealed. So far no water has been encountered. Much of the drilling so far has been in blue shale.

Thurman Oil Tr.'s No. 1 Ruby, NW NW SW Sec. 3-5s-52w. Drlg. blue sh. 1,335 ft.

WYOMING

Big Horn County

The Mule Creek Oil Co. has gone back into its No. 1 Binney Sessions, an old gas well in the Garland field, and will deepen it from 1,800 ft. to the Madison lime. It is an east offset to its No. 1 Sessions, recently deepened 50 ft. to 4,155 ft. and recompleted for 325 bbl. per day.

Mule Creek Oil Co.'s No. 1 Binney Sessions, SE NW NW Sec. 34-56n-97w. Drlg. 2,005 ft., with rotary.
Frank S. Scott's No. 1 Robertson, SE SE SE Sec. 6-54n-93w. S.D. 650 ft.; acct. weather.
Yale Oil Corp.'s No. 1 Simonson, Lot 53, Sec. 34-55n-97w. Drlg. 1,940 ft.

Carbon County

A discovery in a deeper pay appears to be imminent in the Sinclair-Wyoming Oil Co.'s No. 4-E on the West Ferris dome, or East Mahoney, as some scouts carry it. West Ferris has been proven for gas in the Dakota and Sundance, but this is the first well drilled to the Tensleep. It is bottomed at 4,292 ft. in the Tensleep and showing oil. The 7-in. was cemented at 4,273 ft. and it is preparing to drill in.

Tri-State O. & R. Co.'s No. 17, NW SE NW Sec. 20-21n-80w. Drlg. 184 ft.
Sinclair-Wyoming Oil Co.'s No. 4-E, C SE SW Sec. 29-26n-87w. T.D. 4,292 ft.; cmtd. 7-in. at 4,273 ft.; W.O.C.
Albert Dev. Synd.'s No. 1 Boeke, SW NW Sec. 18-25n-79w. S.D.O. 922 ft., in grnt.

Natrona County

General Pet. Corp.'s No. 1-21-G, NW NW NW Sec. 21-35n-77w. T.D. 6,489 ft.; making repairs.

Niobrara County

Lance Creek had one completion, a Sundance-sand well which extended the proven area for that horizon ½ mile to the east, in the Continental Oil Co.'s No. 3 Rodeo O.P.C.-4, SE NE NE Section 35-36n-65w. It was drilled to 4,315 ft., and was given a rating of 168 bbl. per day through the tubing. After swabbing it flowed 105 bbl. in 14 hours. The 4½-in. was cemented on top of the basal Sundance at 4,302 ft. It is the most easterly well in the field, being ½ mile northeast of Continental's No. 7 Rodeo-4, and the same distance south and east of No. 6 Rodeo-4. It is ¾ mile east of the nearest Leo-sand well. This makes the seventh Sundance-sand producer in Section 35, of which six were drilled in 1939. There is a fault between this group of wells and the field proper and the development of Sundance production to the east was somewhat of a surprise.

The Continental's No. 17 Tom Bell, SE SE NE Section 33-36n-65w, 1½ miles west of No. 3 Rodeo-4, in the faulted area between the main pool and the east side wells, was a failure in the Sundance, but is a near completion in the Leo sand. It swabbed 119 bbl. through the tubing when the pipe had to be pulled to be cleaned out. Total depth is 5,300 ft. and the 7-in. is at 5,244 ft.

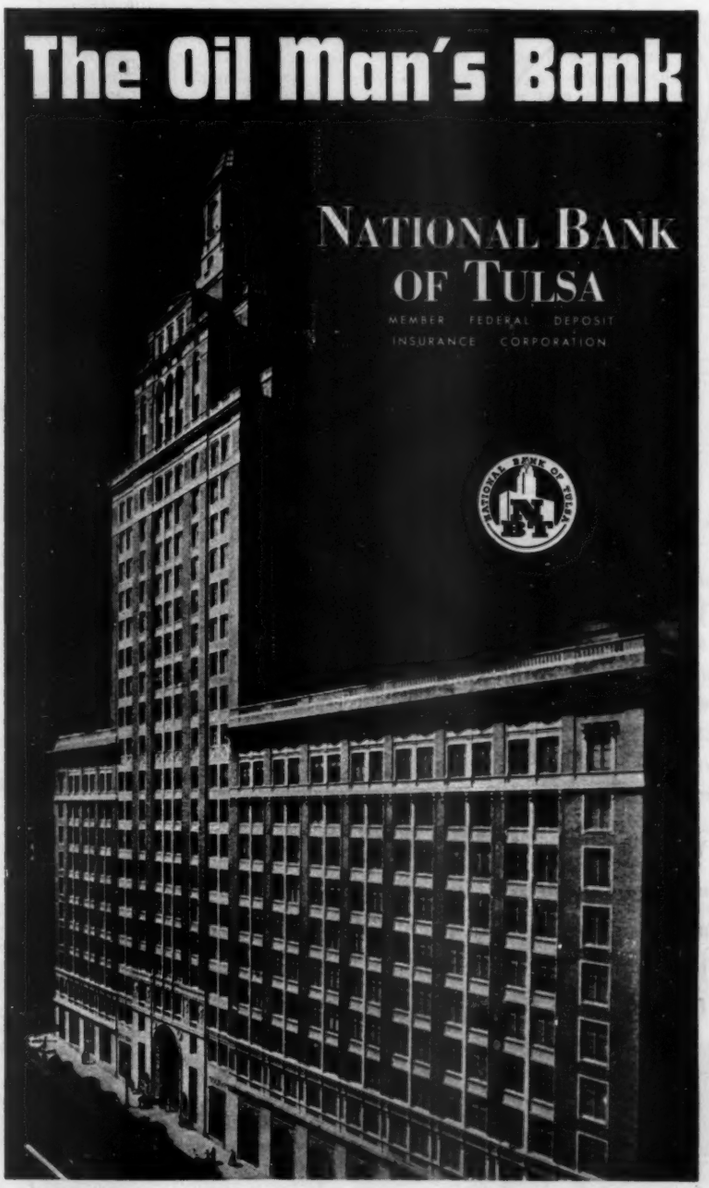
Minnelusa Oil Corp.'s No. 1 Ford, SW NW NE Sec. 33-36n-65w. Drlg. 3,075 ft.
Continental Oil Co.'s No. 6 Apex-O.P.C.-4, SW NW NW Sec. 35-36n-65w. B.R.
Ohio Oil Co.'s No. 14 Carrie Putnam, NW SW SW Sec. 33-36n-65w. B.R.; (cor. loc.).
Ohio Oil Co.'s No. 15 Carrie Putnam, NW NE SW Sec. 33-36n-65w. B.R.
Continental Oil Co.'s No. 10-B Schuricht, SE SE SE Sec. 6-35n-65w. B.R.
Continental Oil Co.'s No. 6-A Schuricht, SE NE SE Sec. 6-35n-65w. Cmtd. 10¾-in. at 317 ft.; (cor. loc.).
Continental Oil Co.'s No. 5 Apex O.P.C.-1, NE SW NE Sec. 34-36n-65w. Cmtd. 10¾-in. at 307 ft.
Argo Oil Co.'s No. 8 Ford, SE NE NW Sec. 33-36n-65w. Drlg. r.b. 4,510 ft.
Argo Oil Co.'s No. 12-A Elliott, SE NW NE Sec. 7-35n-65w. Drlg. 4,743 ft.; T. Converse 4,615 ft.
Minnelusa Oil Corp.'s No. 4 H. & M., NE NE SE Sec. 7-35n-65w. Drlg. 3,610 ft.
Minnelusa Oil Corp.'s No. 1-B Joss, NE SW NW Sec. 7-35n-65w. T.D. 5,439 ft.; cmtd. 7-in. at 5,418 ft.
Ohio Oil Co.'s No. 4 Cash-1, NW NE SW Sec. 4-35n-65w. T.D. 5,499 ft.; cmtd. 7-in. at 5,458 ft.; cd. sat. sd. 5,459-76 ft. and 5,476-99 ft.
Ohio Oil Co.'s No. 6 Rohlff, SE NW NE Sec. 32-36n-65w. Drlg. 3,405 ft.
Continental Oil Co.'s No. 5 Apex-O.P.C.-2, NW NW SE Sec. 34-36n-65w. Drlg. 5,550 ft.; sat. in Joss sd.
Continental Oil Co.'s No. 17 Tom Bell, SE SE NE Sec 33-36n-65w. T.D. 5,300 ft.; tstg.
H. D. Moore's No. 1 Berggren, SE NW Sec. 23-35n-63w. Drlg. 2,526 ft.

Lincoln County

Fontenelle Dev. Co.'s No. 1 Pomroy, NE SW Sec. 5-24n-113w. T.D. 130 ft.; U.R. 12½-in.

Sweetwater County

Sinclair-Wyoming Oil Co.'s No. 91-A, SE NE NE Sec. 10-26n-90w. M.I.M.; (first report).
Vermillion Oil Co.'s No. 2 Govt., SW SW SW Sec. 7-12n-99w. Drlg. 2,516 ft.; dry sd. at 2,475-2,500 ft.
Sinclair-Wyoming Oil Co.'s No. 90-A, SW SW NW Sec.



11-26n-90w. T.D. 2,057 ft.; cmtd. 7-in. on bttm.; T. Sundance 2,055 ft.; R.U.C.T.

Sublette County

Marvel Oil Co.'s No. 1-H Govt., CEL NE SE Sec. 28-27n-113w. R.U.; (first report).
North La Barge Oil Co.'s No. 1 Govt., SW NE SE Sec. 8-27n-113w. S.D. 1,567 ft.

Weston County

Bruce C. Teeter's No. 1 State, C SW NE Sec. 36-42n-61w. Drlg. 2,290 ft. in new hole, in top Minnelusa sd. Butcher Bros.' No. 5, SW NW NE Sec. 16-46n-63w. R. O.G.

MONTANA

Reports from Salt Lake City state that the directors of the Inland Empire Refineries, Inc., adjourned meeting called to approve construction of a 320-mile, 6-in. oil line from Cut Bank to Spokane without taking action to consider a proposal of the Great Northern Railroad to reduce freight rates sufficiently to obviate the necessity of constructing the line.

Glacier County

Cut Bank had one completion, the first 200-bbl. well of the year, and two new operations. The Santa Rita

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Illinois Fields

(Continued from Page 73)

Bride, Inc.'s No. 18 N. L. Lee, NW NE SE Section 29-2n-2e, Devonian top at 3,322 ft., total depth 3,414 ft., 6,000 gal. of acid, flowed 4,341 bbl. through open casing and tubing. Mitchell's No. 5 Lee, NW SE NE Section 29-2n-2e, Devonian top at 3,341 ft., pay at 3,370-3,424 ft., total depth, 5,000 gal. of acid, 7,380 bbl. through open casing and tubing. Paul Rossi's No. 8 Brooks, SW NE SW Section 29-2n-2e, Devonian top at 3,327 ft., pay at 3,372-3,438 ft., total depth, 5,000 gal. of acid, flowed 5,547 bbl. in 24 hours through open tubing and casing, potentially the largest well ever completed in Illinois. Max Pray's No. 5 Cole, NE cor. SE NW SE Section 16-2n-2e, Devonian lime at 3,490 ft., water at 3,549-53 ft., plugged back to 2,085 ft., and pumped 25 bbl. of oil and 19 bbl. of water from McClosky-lime pay. Some of the above completions were mentioned in last week's report before they were officially completed.

Tomberlin's No. 2 Young strip, NW cor. SE NE SE Section 20-2n-2e, deepened from 2,057 ft. to 2,226 ft., had Salem sand at 2,187 ft., and pay at 2,208-25 ft., acidized with 3,000 gal., pumped 143 bbl. Texas Co.'s No. 7 L. Maxwell B, NE NE SE Section 30-2n-2e, McClosky pay at 1,965-78 ft., pumped 252 bbl. without an acid treatment. Texas' No. 14 R. Friederich, SW NW NW Section 29-2n-2e, McClosky pays at 2,052-55 ft. and 2,065-78 ft., pumped 253 bbl. Texas' No. 6 L. Maxwell B, C W½ NE SE Section 30-2n-2e, McClosky pays at intervals from 1,956 to 2,020 ft., pumped 91 bbl.

In the south end of the Salem field Texas Co.'s No. 6 Bundy, SW NW NE Section 6-1n-2e, McClosky-lime pays at 1,972-75 ft. and 2,015-21 ft., 2,000 gal. of acid, pumped 597 bbl.

Clinton County

In the west end of the Centralia field Williams and others' No. 1 Ellerman, NW SE SW Section 36-2n-1w, Clinton County, 10 bbl. of oil and 7 bbl. of water from Benoist sand at 1,360-77 ft., shot with 20 qt.

L. C. Thorpe's No. 1 Merten, NE NE SW Section 28-2n-1w, Benoist sand at 1,413-60 ft., only a small showing of oil, dry and abandoned.

Midwestern States Oil Co.'s No. 1 Panzan, SW SE NE Section 13-1n-1w, pay at 2,904-09 ft., acidized with 750 gal., flowed 392 bbl. Tom Potter, after drilling to 1,910 ft. in No. 1 Skasick-Bailey, SW cor. SE NE Section 13-1n-1w, decided that too many wells were drilling close to his, and he is reported to have abandoned the hole. Taylor Drilling Co.'s No. 1 Heiss A, NE NW NE Section 13-1n-1w, acidized with 1,000 gal. in Devonian lime topped at 2,868 ft., flowed 356 bbl. the first 6 hours. Pay was at 2,868-2,915 ft. Volkman and others' No. 1 Wiggens, SE SE NE Section 13-1n-1w, acidized Devonian lime with 500 gal. at 2,903-08 ft. It flowed 72 bbl. in 5 hours and was rated at 288 bbl. per day.

Clay County

In Clay County Pure Oil Co.'s No. 12 Sol Smith B, SW NW SW Section 7-2n-8e, Clay City pool, Fredonia-lime top at 3,060 ft., 5,000 gal. of acid, flowed 265 bbl. Pure's No. 1 Gill, SE NE NE Section 25-2n-7e, Fredonia pay at 2,967 to 3,095 ft., at intervals, acidized with 2,000 and 5,000 gal. Casing was perforated opposite Rosiclare lime at 2,963-76 ft., acidized with 5,000 gal., pumped 77 bbl. Pure's No. 2 A. Gill, C N½ NE NE Section 24-2n-7e, Fredonia pays from 3,016 to 3,072 ft., in streaks, acidized with 5,000 gal., flowed 559 bbl. Pure Oil Co.'s No. 2 Hubble, C E½ NW SW Section 4-1n-8e, Fredonia pays at 3,068-72 ft. and 3,109-12 ft., 5,000 gal. of acid, pumped 59 bbl. Pure's No. 2 J. R. Hubble D, SW cor. NE NW NW Section 4-1n-8e, Fredonia at 3,008-35 ft., 5,000 gal. of acid, flowed 169 bbl.

In Washington County Shell Oil Co., Inc.'s No. 1 Goodwin, NW SW NE Section 26-3s-3w, Benoist sand at 1,244-63 ft., shot with 8 qt., pumped 44 bbl. of oil and 5 bbl. of water. Magnolia Petroleum Co.'s No. 12 Francis, NW SW NE Section 22-3s-3w, Benoist sand at 1,296-1,305 ft., shot with 10 qt., pumped 5 bbl.

White County

In White County Hollingsworth's No. 1 Felix, SW cor. SE SW NW Section 20-3s-8e, Aux Vases sand at 3,232-53 ft., shot with 30 qt., pumped and flowed 81 bbl. Jack Wood and others' No. 1 Jackson, NE NW SW Section 20-3s-8e, Aux Vases sand at 3,223-53 ft., pumped 110 bbl. per day. H. H. Weinert, Inc.'s No. 2 Miller Brothers and Anderson, C N½ SW NW Section 29-3s-8e, McClosky-lime pays at 3,352-55 ft. and 3,372-82 ft., acidized with 1,000 gal. through perforations at 3,367-74 ft., pumped 75 bbl. of oil and 75 bbl. of water. Oils, Inc.'s No. 1 Large, NE NW SW Section 20-3s-8e, dry and abandoned at 3,380 ft., Aux Vases sand at 3,241-66 ft. Etheridge & Porter's No. 1 Watson, NE NW SW Section 20-3s-8e, McClosky lime at 3,373-81 ft., dry; Aux Vases sand at 3,243-60 ft., shot with 20 qt., total depth 3,395 ft., dry and abandoned. A. F. Anding's No. 2 McIntosh, SE NE SW Section 31-3s-8e, Ste. Genevieve lime at 3,277 ft., total depth 3,395 ft., dry and abandoned. Randall and others' No. 1 Horton, SE SE SE Section 12-3s-9e, dry and abandoned at 3,413 ft. Rosiclare lime was penetrated at 3,354-71 ft.

In Gallatin County Skelly Oil Co. and Exchange Oil Co.'s No. 1 Hale, NE NE NE Section 21-7s-9e, St. Louis lime at 3,080-3,100 ft., total depth, dry and abandoned.

In the Storms pool in White County Skelly Oil Co.'s No. 3 Storms, SW NW SW Section 14-6s-9e, had Waltersburg-sand top at 2,215 ft. with pay at 2,240-54 ft., pumped 330 bbl. of oil and produced 20,000,000 cu. ft. of gas. Blackstock's No. 5 Storms, SW NE NE Section 23-6s-9e, Waltersburg sand at 2,234 ft., total depth 2,268 ft., flowed 350 bbl. of oil and 12,000,000 cu. ft. of gas.

In the Keensburg pool in Wabash County Vickers

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Petroleum Co.'s No. 5 Bump, NE NW SW Section 9-2s-13w, Cypress sand at 2,425-40 ft., shot with 15 qt., swabbed 120 bbl. Marvel Oil Co.'s No. 2 Beall, SW NW SE Section 11-2s-13w, McClosky lime at 2,722-41 ft., pumped 15 bbl. Continental Oil Co.'s No. 1 LaGier, NE NW SE Section 17-2s-13w, total depth 2,461 ft., plugged back to 1,795 ft., and casing perforated at 1,765-82 ft. (Biehl sand), pumped 79 bbl. Continental Oil Co.'s No. 4 Schultz, NW cor. NE NE Section 17-2s-13w, shot with 30 qt. at 2,412-24 ft., Cypress sand, pumped 54 bbl. Magnolia Petroleum Co.'s No. 4 Batson, NW SE SE Section 17-2s-13w, Stray sand topped at 2,518 ft., total depth 2,580 ft., dry and abandoned. H. A. Reckas and others' No. 2 Elkins, SW cor. NW NW NE Section 29-2s-13, total depth 2,513 ft., dry; plugged back to 1,780 ft. and tested dry. Cypress sand lay at 2,504-08 ft.

In White County Superior Oil Co.'s No. 1 H. Ford, SW SE SW Section 4-5s-14w, Waltersburg sand at 2,163-87 ft., pumped 100 bbl.

Pyramid Petroleum Co.'s No. 3 Porter, C E½ NE NE Section 13-6s-8e, acidized with 4,000 gal. and swabbed 192 bbl. per day. Fredonia lime was topped at 3,059 ft., total depth 3,105 ft.

New Wildcats

In Vermilion County H. L. Leak was rigging up machine for No. 1 Cadle, 275 ft. from north and east lines of SE SW Section 6-21n-11w.

In Coles County Carter Oil Co. had rig up for No. 1 Seaman, C NW NE SW Section 35-12n-7e.

In Montgomery County Henderson was moving in machine for No. 1, farm name not ascertained, C SW SE SW Section 19-10n-4w.

In Fayette County John Pummill was moving in material for No. 1 Isbell, C NW NE SW Section 33-8n-1w.

In Lawrence County Kentucky Natural Gas Co. made a location for No. 1 Crews, C NE SW Section 30-4n-10w. Emerick & Allen are deepening No. 1 Garst, 470 ft. from south and 330 ft. from east lines of NE¼ Section 33-2s-13w, and were drilling at 600 ft.

Progress of Outposts

In Massac County Marshall Drilling Co.'s No. 1 McGhee, NE NE NE Section 3-16s-5e, drilling at 2,250 ft.

In Alexander County Hodges' No. 1 Arnold & Middleton, SE SE NW Section 35-15s-2w, drilling at 272 ft.

In Williamson County Carterville Oil & Gas Co. made a location for No. 1 Connor, NW SE SW Section 1-10s-1e. Nation Oil & Gas Co.'s No. 1 Coleman, NW SW SW Section 1-10s-1e, total depth 2,021 ft., shut down for orders at plugged-back depth of 2,009 ft.

In Saline County Easley Drilling Co. had rig up for No. 1 Oliver, C NE NE Section 16-10s-5e.

In Gallatin County F. E. Earidson's No. 1 Logan, NW NW SW Section 16-9s-9e, was shot with 50 qt. in Waltersburg sand at 1,832-47 ft., and the crew was cleaning out. Exchange Oil Co. has rig up for No. 1 Heusling, NW SW NW Section 7-8s-9e. D. E. Colebeck was drilling at 240 ft. in No. 1 Egyptian Tie & Lumber Co., SW NW NE Section 19-8s-10e.

In Williamson County Blalock and others' No. 1 Smathers, NE SE NE Section 9-9s-2e, total depth 2,562 ft., plugged back to 1,371 ft., and swabbed salt water and a small oil showing; shut down for orders.

In Randolph County H. E. Goss' No. 1 Schulze, NE SE NW Section 2-7s-6w, Aux Vases sand at 693 ft., total depth 734 ft., will plug back 20 ft. and 4-in. casing run to 702 ft.

In Macon County Eureka Oil Corp. was drilling at 945 ft. in No. 1 Rhodes, SW SW NW Section 28-17n-3e.

In Coles County East Oakland Syndicate's No. 1 Temple, in Section 36-14n-10e, was at a total depth of 2,290 ft. A test developed water and a small oil showing.

In Edgar County Myers' No. 1 Stokes, SW NW SE Section 22-14n-14w, was drilling at 300 ft. Hawthorne's No. 1 Hathaway, NW NW SW Section 17-14n-13w, total depth 897 ft., set 8¼-in. casing at 829 ft. and was preparing to plug back to 850 ft.

In Christian County A. Moore and others' No. 1 Meyers, SE SW SE Section 7-13n-1e, drilling new hole at 365 ft.

In Shelby County O. Baugher's No. 1 Anderson, NW cor. Section 36-12n-5e, will set casing at 100 ft., total depth. Seaboard Oil Co. and others have derrick up for No. 1 Miller, SW SW SE Section 32-11n-2e.

In Clark County Kingwood Oil Co.'s No. 1 Booth-Poorman, SW NW NE Section 17-11n-14w, drilling at 600 ft. Allen & Scherritt's No. 1 Biggs, NW NW SW Section 9-11n-14w, drilling at 100 ft.

In Fayette County Kingwood Oil Co.'s No. 1 Sloane, NE SE NE Section 29-9n-2e, Ste. Genevieve-lime top at 1,835 ft., total depth 1,843 ft.

In Shelby County Barr's No. 1 Dammerman, NW NW SW Section 18-8n-4e, total depth 1,470 ft., fishing for bit.

In Madison County Wilson's No. 1 Danderman, SW SW SW Section 1-5n-6w, drilling at 135 ft. R. J. Jennings and others' No. 1 Wagner, NE SW SW Section 22-4n-5w, rigging up standard tools.

In Lawrence County W. L. Dorsey's No. 1 Vabdermost, NE SW NW Section 2-2n-12w, drilling at 830 ft.

OHIO FIELDS

ATHENS, Ohio, Feb. 12.—Eight completions were reported in the Ohio fields covered by this report, three gas wells, one oil well and four dry holes.

In Athens County, Carthage Township, E. Gibson and others' No. 1 W. L. Potter, SW¼ Section 18, topped Corniferous lime at 3,596 ft. and was drilling at 3,650 ft. In Carthage Township A. D. Townsend's No. 1 S. E. McCall, Section 8, is a gas well gaging 600,000 cu. ft. on open flow from the Maxon sand at 1,088-1,101 ft.

In the Newark pool, Licking County, Newton Township, two gas wells in the Newburg reported as completed last week were given shots. Allen Willey and others' No. 3 Fred Eshelman, fourth quarter, shot with 80 qt., produced 1,150,000 cu. ft., shut in. Ohio Fuel Gas Co.'s No. 1 Dewitt Hansburger, shot with 50 qt., produced 3,500,000 cu. ft., shut in. The Clinton sand was missing in the Ohio Fuel Gas Co.'s No. 1 J. Homer Johnson, southwest part of fourth quarter, and it was abandoned at 2,443 ft.

In Medina County, Montville Township, Wood and others' No. 1 Mona Rowley, Lot 96, found Berea sand dry, total depth 589 ft. In Spencer Township R. E. Cain and others' No. 1 Bascon Blanton, Section 13, was dry through the Clinton sand to 2,607 ft.

In Noble County, Wayne Township, Eugene Ward and others' No. 1 James Hart, Section 2, had a small oil showing at 736 ft. and was abandoned at 760 ft.

In Washington County, Liberty Township, the test by S. S. Stewart on C. E. Smith's farm in Section 19, was shot in the Germantown sand for a 3-bbl. oil well, total depth 1,072 ft.

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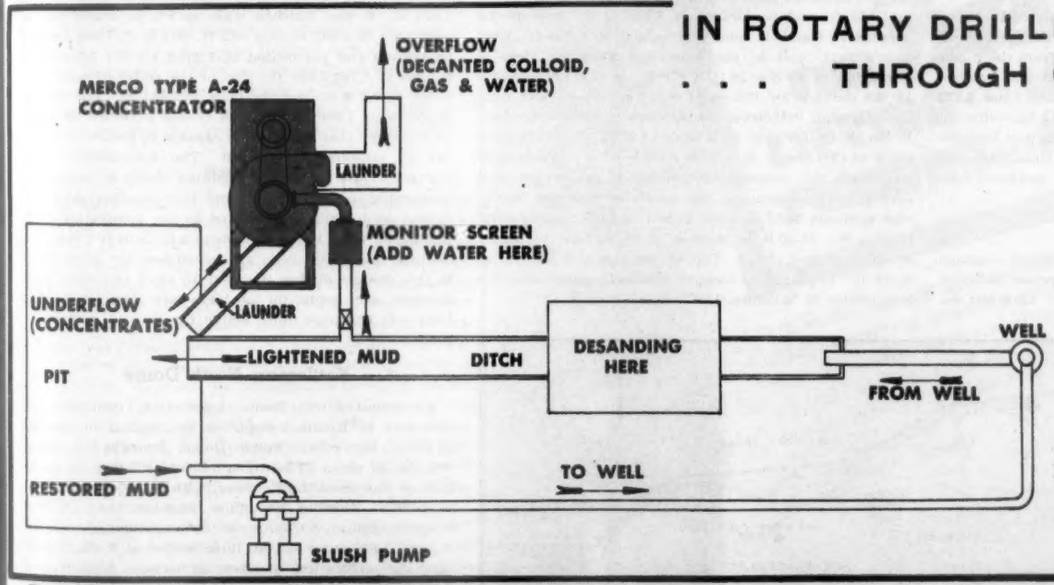

Flow chart above outlines the cost-saving method of maintaining mud-weight by concentrating mud weighting materials which are remerged with the lightened mud.

Adding weighting material to built-up mud weight entails a needless and costly waste of surplus weighted mud. With a Merco Concentrator mud weight can be constantly maintained by concentrating the weighting material and using it over and over again.

Sturdy flow chart at left.

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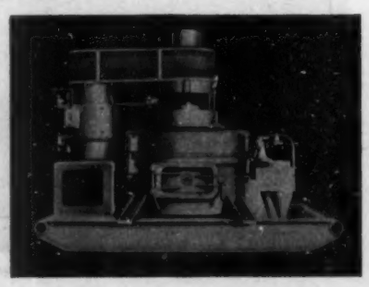


MERCO CENTRIFUGAL CO., Division A-1, 343 Sansome Street, San Francisco, California

California Field Report

By
L. P. STOCKMAN

Voluntary Conservation Is Difficult of Accomplishment

LOS ANGELES, Calif., Feb. 12.—Completions in California during the past week were well scattered throughout the various fields of the state but among the group there were several wells that showed substantial initials. These latter included two new wells at Ventura Avenue and one each in the Northeast Coalinga, Southeast Coalinga, Kettleman North Dome and Dominguez fields. There has not been much change in the amount of drilling under way, although in the Montebello field, operators are nearing the close of development work as far as La Merced zone is concerned.

The subcommittee of the Central Committee appointed several weeks ago to conduct a survey and devise ways of reducing drilling operations, faced a situation that could not be solved immediately. Accordingly the various field committees have been authorized to undertake cooperative work in an effort to reduce drilling as much as possible. The situation has resolved itself into a condition where operators must continue drilling in order to maintain current production as the reduction of the maximum well allowable from month-to-month would eventually lower total production below requirements.

Current daily production of leading California fields follows:

	Bbl.
Wilmington	83,300
Kettleman North Dome	46,500
Midway-Sunset	59,500
Long Beach	45,500
Ventura Avenue	38,400
Huntington Beach	26,450
Santa Fe Springs	26,100

Wilmington

Long Beach Oil Development Co. completed two tideland wells in the Wilmington field in the past week and both showed commercial production from the upper or Ranger zone. These two wells were No. 4-Z, finished flowing 430 bbl. of 18.4-gravity oil per day from 2,872 ft., and No. 5-Z, flowing 380 bbl. of 18.3-gravity oil daily from 4,057 ft. The latter well which was brought in flowing through a 48/64-in. bean was finished in the Terminal zone but only the Ranger was produced during the test.

Coalinga

Amerada Petroleum Corp. in the Northeast Coalinga field completed No. 22-20-B Ewing, in Section 20-19-16, flowing 3,060 bbl. of 27.6-gravity oil and 1,200,000 cu. ft. of gas per day from the equivalent of the Gatchell zone with bottom of the hole at 8,182 ft. It was brought in flowing through a 30/64-in. bean and showed a tubing and casing pressure of 1,100 lb. and 1,300 lb. respectively, was finished with a 7-in. water string cemented at 8,134 ft. and 80 ft. of drillable liner landed at 8,182 ft. and perforated at 8,152-82 ft. Top of the productive Gatchell zone was logged at 8,150 ft. Amerada's next well in the Northeast Coalinga field is scheduled to be No. 28-17-B S.P.L., in Section 17-19-16, as the derrick for this well was erected a short time ago. Bandini Petroleum Co. appears to have a dry hole in No. 46-18-B Webb, as it is down 8,951 ft., in Moreno shale of Cretaceous age. This well is on the Webb lease on which the company completed a productive well several months ago. In the south end of the Northeast Coalinga field Bandini Petroleum Co. is preparing to test No. 51-30-B in Section 30-19-16, now bottomed in oil sand at 8,138 ft. Top of the Gatchell sand is at 8,118 ft. This well is located relatively close to a dry hole drilled by Wilshire Oil Co. late last year.

In the Southeast Coalinga field R. S. Lytle, operating for former stockholders of Petroleum Securities, Honolulu Oil Corp. and Seaboard Oil Co., has completed No. 37-18-F, in Section 18-20-16, flowing 2,298 bbl. of clean 31.5-gravity oil and 1,560,000 cu. ft. of gas per day from the Gatchell zone, with bottom of the hole at 7,824 ft. It was finished with an 8⅝-in. water string cemented at 7,302 ft. and 552 ft. of 6⅝-in. liner landed on bottom and perforated at 7,337-7,529 ft., 7,576-7,744 ft. and at 7,765-7,802 ft. Top of the Gatchell zone was cored at 7,338 ft. and the base at 7,811 ft. The tubing pressure of 1,250 lb. and the casing pressure of 1,200 lb. indicates that this well is capable of greatly exceeding its established potential. The formation in the Northeast and Southeast Coalinga fields is especially conductive to fast drilling and this together with excellent equipment has resulted in the completion of a number of wells in these fields in a little over 1 month's drilling time. Six wells are scheduled for completion in this district during the next 15 days and since new derricks are going up as wells are completed, this field will continue quite active for several months at least.

Kettleman North Dome

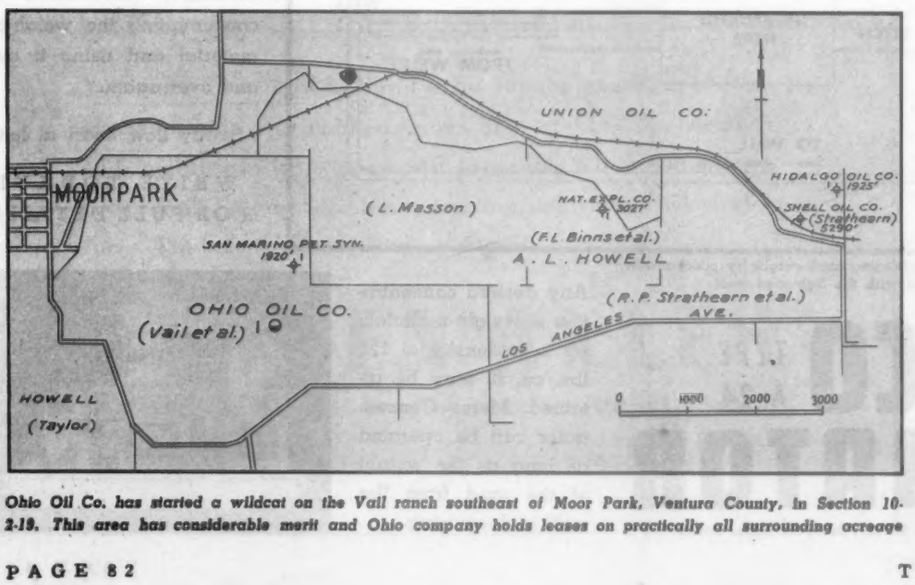
Kettleman North Dome Association, generally referred to as Kenda, completed No. 36-26-Q in Section 26-22-18. Kettleman North Dome, brought in doing 900 bbl. of clean 32.5-gravity oil and 871,000 cu. ft. of gas per day from the Temblor, with bottom of the hole at 8,496 ft., flowing through a 128/64-in. bean. It was finished with an 8⅝-in. water string cemented at 6,685 ft., and 1,836 ft. of 6⅝-in. liner landed at 8,491 ft. and carrying perforations at intervals between 6,766 ft. and 8,389 ft. Top of the Brown shale was cored at 5,275 ft. and top of the Temblor was logged at 6,541 ft. Production was coming through 5,993 ft. of 3-in. tubing. Standard Oil Co. made a formation test on No. 27-19-J in Section 19-21-17, which was bottomed in the Eocene at 10,960 ft. and with the tester at 10,720-10,850 ft., and open 8 hours, the well responded with a flow through a 60/64-in. bean at a daily rate of 175 bbl. of 46.3-gravity oil cutting 4 per cent, and 5,000,000 cu. ft. of gas. This well has 7-in. casing cemented at 8,711 ft. and an early completion is anticipated. Standard's No. 72-19-J in the same section is still held up with mechanical trouble at 10,903 ft. In Section 29-21-17, Standard is making preparations to spud No. 321-29-J and No. 334-29-J.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	February 4		January 28			
Intercoastal-domestic—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Fuel oil	62,008	8,858	.....	.....	92,268	132,365
Diesel and gas oil	.....	.....	.....	.....	.....	163,501
Gasoline	.....	.....	.....	.....	27,850	129,039
Foreign exports—						
Crude oil	618,560	88,366	593,733	84,819	1,679,753	1,134,833
Fuel oil	32,613	4,659	307,149	43,878	842,407	897,838
Diesel and gas oil	198,145	28,306	251,800	35,971	855,929	461,799
Gasoline	75,401	10,772	81,200	11,600	459,538	739,152
Kerosene	12,801	1,829	.....	.....	121,449	124,563
Coastwise-domestic—						
Crude oil	112,733	16,105	229,243	32,749	985,758	711,864
Fuel oil	217,397	31,057	323,606	46,229	1,387,471	874,957
Diesel and gas oil	63,147	9,021	38,617	5,517	292,425	300,784
Gasoline	349,659	49,951	249,156	35,594	1,341,078	1,049,126
Kerosene	18,120	2,589	9,942	1,420	68,705	26,379

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Fuel oil	68,740	9,820	.....	.....	68,740	.....
Diesel and gas oil	140,728	20,104	.....	.....	210,713	69,550
Lubricants	.....	.....	.....	.....	3,610	4,170
Foreign exports—						
Crude oil	212,174	30,311	.....	.....	255,294	488,307
Fuel oil	50,912	7,273	.....	.....	140,950	197,240
Diesel and gas oil	64,484	9,212	.....	.....	115,109	64,649
Gasoline	129,667	18,524	.....	.....	305,625	360,110
Kerosene	29,377	4,197	.....	.....	36,557	49,227
Lubricants	.....	.....	.....	.....	782	3,386
Coastwise-domestic—						
Fuel oil	72,316	10,331	158,141	22,592	698,499	850,993
Diesel and gas oil	20,115	2,874	35,248	5,035	143,270	151,986
Gasoline	168,680	24,097	162,286	23,184	817,008	975,819
Kerosene	18,194	2,599	10,090	1,441	91,483	97,036



Ohio Oil Co. has started a wildcat on the Vail ranch southeast of Moor Park, Ventura County, in Section 10-2-19. This area has considerable merit and Ohio company holds leases on practically all surrounding acreage

both of which are scheduled to be carried down into the Eocene.

Ventura Avenue

In the Ventura Avenue field of Ventura County No. 111 Taylor of Shell Oil Co., Inc., was completed, flowing 1,585 bbl. of 31.8-gravity oil and 1,183,000 cu. ft. of gas per day through a 2-in. bean from a depth of 7,360 ft., and No. 120 Lloyd of Tide Water Associated Oil Co. was finished, flowing 955 bbl. of 29.9-gravity oil through a 128/64-in. bean along with 1,180,000 cu. ft. of gas from 9,190 ft. No. 111 Taylor was finished with a 7⅝-in. water string cemented at 6,600 ft. and 799 ft. of 5½-in. liner, including perforations at 6,601-7,355 ft., and 7,184 ft. of 2½-in. tubing. No. 120 Lloyd was finished with 9⅝-in. casing set at 5,545 ft. and a 7-in. water string cemented at 8,565 ft. and 674 ft. of 5-in. liner landed at 9,186 ft. and carrying perforations at 8,562 9,186 ft. Production was brought in flowing through 8,475 ft. of 3-in. tubing. California Alliance Oil Co. has started grading roads to a location on the Schmidt lease in the north flank of the Ventura Avenue anticline and the well should be ready for a spud within 2 weeks. It is located in the area that has been undergoing development during the past year and which contributed several excellent flowing wells. In addition to No. 1 Schmidt, California Alliance Oil Co. is drilling ahead in No. 2 Hartman in the same general area.

North Belridge

Belridge Oil Co., in the North Belridge field, completed No. 22-1 in Section 1-28-20, flowing 368 bbl. of 33.4-gravity oil and 5,900,000 cu. ft. of gas per day from the Wagonwheel zone of Eocene age with bottom of the hole at 8,395 ft. It flowed through two 96/64-in. beans and was finished with a 9-in. water string cemented at 8,012 ft. and 421 ft. of 4¾-in. liner, including 380 ft. of 250-mesh perforations, landed at 8,395 ft. and 8,320 ft. of 2½-in. tubing. It logged top of the Belridge 15 sand at 5,195 ft. top of the Bloemer sand of Temblor age at 7,872 ft., base of the Bloemer sand at 8,011 ft. and top of the Wagonwheel sand at 8,040 ft. Belridge Oil Co. is the only operator doing any drilling in the North Belridge field. This company owns in fee all of its acreage in the North Belridge field.

Montebello

In the west end of the Montebello field Junior Oil Co. completed No. 1 Kay, flowing 460 bbl. of very clean 35.9-gravity oil and 2,000,000 cu. ft. of gas per day from the La Merced zone with bottom of the hole at 7,610 ft. This new well was finished with a 7-in. water string cemented at 7,510 ft. and 111 ft. of 5½-in. liner landed at 7,610 ft. and perforated at 7,510-7,610 ft. Top of the La Merced zone was cored at 7,513 ft. and production was flowing through 7,560 ft. of 2½-in. tubing.

Rosecrans

Southern California Petroleum Corp. completed No. 1 Rowena in the southern end of the Rosecrans field, flowing 280 bbl. of very clean 32.3-gravity oil and 165,000 cu. ft. of gas per day through a 32/64-in. bean from the uppermost member of the O'Dea zone, with bottom of the hole at 7,465 ft. This well, which may possibly be producing from a new zone just above the O'Dea zone, was finished with a 7-in. water string cemented at 7,302 ft. after the projected 8⅝-in. water string froze at 6,000 ft. Opposite the oil sand the company landed 179 ft. of 3½-in. drillable liner on bottom and this carried perforations at 7,296-7,465 ft. The 7-in. water string was not a full string from the top of the hole but consisted of 1,547 ft. of blank casing. Attempts to develop flush production in the southern end of the Rosecrans field have failed and it would not be at all surprising if some of the operators pulled out of the district. There appears to be just enough oil sand and production to put the area on the border line and in cases of this kind operators usually lose interest and finally suspend work.

Dominguez

Development work in the extreme western end of the Dominguez field of Los Angeles Basin is on the increase and within a few weeks the industry should know what to expect from this extension work. R. E. Havenstrite is drilling a second well on the Larronde lease on which he completed an extension well late in 1939 and Pongratz Petroleum Co. has passed the 4,000 ft. level in No. 1 Grant. In addition Union Oil Co. will soon make a location on the Gardena Syndicate land and if Pongratz Petroleum Co. completes No. 1 Grant, Union will be obliged to offset it. During the week, Union Oil Co. completed No. 13 Carson in the older section of the Dominguez field, flowing 610 bbl. of clean 32.2-gravity oil and 750,000 cu. ft. of gas per day from the eighth Callender zone with bottom of the hole at 7,784 ft. South of the Dominguez extension in the western end of the field, Seeport Oil Corp. has leased the Dasteel property at Victoria and Avalon and present plans call for immediate work.

Los Angeles Basin

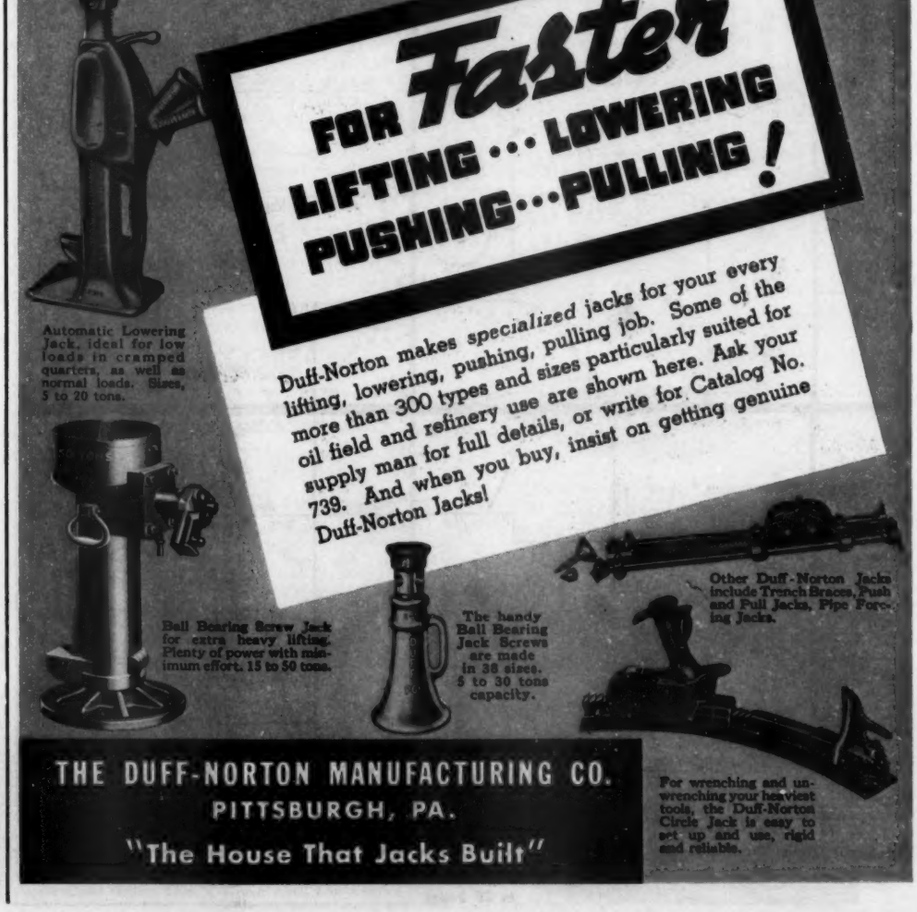
The Inglewood Civic League Against Oil Drilling has been circulating petitions in the city of Inglewood for the past several days to prevent further exploitation of property in the Potrero field which is located partially within the corporate limits of Inglewood. If this matter is brought to the attention of the Inglewood City Council and results in the enactment of rigid restrictions, it will prevent the Hollywood Racing Association from drilling on the Inglewood race track as well as preventing Basin Oil Co. and others from proceeding with additional work. The Inglewood city attorney tentatively framed an ordinance which provided among other things that the consent of 60 per cent of all interested property owners had to be secured before drilling would be permitted within a radius of 1,000 ft. from any subdivided area but this does not meet with the approval of those who demand the prohibition of all drilling. In several court decisions it has been found that it is not possible to restrict drilling within any corporate area if production has been developed on property just outside the area. Long Beach Harbor commissioners refused to grant drilling permits to Continental Oil Corp. to permit drilling east of an arbitrary boundary, but the court held that even though the people had voted to prohibit drilling operations east of the west boundary of the Los Angeles County Flood Control, the operator could not be denied the opportunity to develop his property even though it was within the corporate limits of the city of Long Beach and restricted against drilling. The U. S. Supreme Court has held in a California case that each interested party has a correlative interest in a common pool and therefore it might be impossible to prevent drilling operations to reduce the interest to possession even though the property should be in a highly restricted area.

Tide Water Associated Oil Co. completed a new well in the Seal Beach field of Orange County when No. 7 Bryant was brought in pumping 490 bbl. of clean 24.9-gravity oil per day from the Bixby zone at 4,343 ft. This new well was finished with an 8⅝-in. water string cemented at 4,320 ft. and 66 ft. of 6⅝-in. liner landed at 4,342 ft. and carrying perforations at 4,301-42 ft. Asphalt Oil Co. abandoned No. 1 Bryant as a dry hole after finding the Bixby zone wet and the Selover zone to be a barren gray sand at 5,158 ft. In the East Coyote field of Orange County, Standard Oil Co. has completed No. 2-13 Coyote, flowing 425 bbl. of 25.4-gravity oil, cutting 2 per cent and 300,000 cu. ft. of gas per day from 4,680 ft. This well, which was brought in flowing through a 30/64-in. bean, was finished with 944 ft. of 6⅝-in. liner landed at 4,677 ft. and perforated at 3,781-4,076 ft. and 4,258-4,677 ft.

San Joaquin Basin

In the Canal field of Kern County Shell Oil Co., Inc., has completed No. 21-13-A Kern County land in Section 13-30-25, flowing 51 bbl. of 35.6-gravity oil and 30,000 cu. ft. of gas per day from 8,356 ft. on gas lift. The small initial of this well, and also because the production is cutting 33 per cent, tends to indicate that this well clearly defines the limits of production in the northeast end of the Canal field. No. 21-13-A was drilled down to 8,980 ft. but was later plugged back to the completion depth when the bit ran into a gray water sand.

In the Round Mountain field of Kern County, California Western Oil Co. has completed No. 12 Coffee in Section 12-28-28, pumping 235 bbl. of 15.5-gravity oil, cutting 15 per cent daily from 1,909 ft. This new well, which cored top of the Vedder zone at 1,880 ft., was finished with an 8⅝-in. water string cemented at 1,889 ft. and 45 ft. of 6⅝-in. liner landed on bottom and including perforations at 1,883-1,909 ft. Production was coming through 1,243 ft. of 3-in. tubing.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North Louisiana, Arkansas

By
GEORGE WEBER

Sugar Creek, Louisiana, Pool Extended by 600-bbl. Well

SHREVEPORT, La., Feb. 12. — Oil production at Sugar Creek, Claiborne Parish, Louisiana, was extended this week with the completion of the field's fourth oil well. A semiwildcat east of El Dorado, Union County, Arkansas, again tested oil and salt water, while another Union County wildcat failed in the Smackover lime. A De Soto Parish wildcat in Louisiana is showing oil and awaiting a test, and the deepest current test, having failed to find production in deeper horizons, plugged back to the gas sand at Monroe and was completed. Two current wildcats in Bienville and Bossier parishes are holding interest.

The Sugar Creek Syndicate's No. 1 Robinson late in the week gaged 600 bbl. of oil in 22 hours through a 1-in. choke while cleaning out. The well, located ½ mile northeast of the nearest Sugar Creek oil well, has 5½-in. casing set at 5,783 ft., and perforations were shot in the Travis Peak oil section at 5,745-60 ft. The well failed to flow on washing, but came in after swabbing, with tubing pressure at 50 lb., and casing pressure of 600 lb.

In De Soto Parish Dewey Jaun's No. 1 Frost Lumber Industries, in Section 14-10n-15w, in the southwest corner of the parish near the Texas line, and about 10 miles southeast of the Joaquin gas-condensate field in Shelby County, Texas, was last reported awaiting cement after setting 7-in. casing at 2,931 ft. The Georgetown formation was topped at 2,910 ft. and shows of oil were reported between 2,931 and 2,949 ft.

Completion of the Union Producing Co.'s No. 1-A Tensas-Delta, a north-flank test of the Monroe field in Morehouse Parish, as a Monroe gas well, followed failure of the well to find production below established shallow production. The Union company's well was drilled to 10,475 ft. without finding any oil showing, and after plugging back to 2,250 ft. and perforating at 2,163-2,225 ft., it made a small gas well in the Monroe horizon.

The most closely watched wildcat in North Louisiana is Gulf Refining Co.'s No. 20 Hodges, in Section 24-16-12, Bossier Parish, which is drilling below 8,460 ft. in hard sandy shale. In La Salle Parish Hunt Oil Co. and Arkansas Fuel Oil Co.'s No. 1 Goodpine is below 6,460 ft. Bienville Parish's current wildcat, Harry Hanbury's No. 1 Holston, is drilling ahead below 5,570 ft.

Arkansas

The Delta Drilling Co. and Fohs Oil Co.'s No. 1 Grace, a Union County semiwildcat, east of El Dorado, revived interest as it resumed testing. After perforating 7-in. casing at 3,465-68 ft. a drill-stem test with packer set at 3,450 ft., using ¼-in. top choke and ½-in. bottom choke, flowed approximately 1,500,000 cu. ft. of gas and 4 bbl. of 37-gravity oil in 1 hour. The fluid was 30 per cent salt water.

In southern Union County, near Junction City, on the Louisiana line, Barnsdall Oil Co. abandoned No. 1 Cameron. The Buckner formation was topped at 8,810 ft., oolitic lime of the Smackover formation at 9,025 ft., and the porous zone at 9,029 ft. The hole was dry and abandoned at 9,069 ft.

The ninetieth oil well in the Magnolia field was brought in late this week. With drilling activity tapering off at Magnolia, new drilling increased in Atlanta, another Smackover-lime field, located to the south.

The Delta Drilling Co. and others' No. 1 Grace, semiwildcat east of El Dorado, Union County, Arkansas, is flowing into pits, making a reported 25 bbl. of fluid hourly through a ¼-in. choke. The production is 20 per cent salt water.

Production by Pool

Estimated daily gross production, all companies, week ended February 10:

NORTH LOUISIANA

	Bbl.
Bellevue	460
Caddo, light	5,145
Caddo, heavy	2,250
Converse	505
Cotton Valley	*14,590
Cross Lake	5,160
De Soto and Red River	985
Elm Grove	305
Haynesville	2,740
Holly	70
Homer	2,665
Lisbon	5,255
Pleasant Hill	85
Rodessa	21,760
Sarepta-Carterville	†315
Sligo	1,875
Sugar Creek	285
Urania	2,600
Zwolle	1,860
Total North Louisiana	68,910

SOUTH ARKANSAS

Atlanta	300
Big Creek	shut in
Buckner	2,320
Champagnolle	1,340
Dorcheat	100
El Dorado	1,700
Lewisville	525
Lisbon	235
Magnolia	20,520
Miller County	250
Nevada	570
Rodessa	2,110
Schuler	18,600
Smackover, light	1,820
Smackover, heavy	14,000
Stephens	535
Troy	1,305
Urbana	940
Village	1,330
Total South Arkansas	69,100

*3,870 bbl. is distillate. †105 bbl. is distillate. Texas side of Rodessa 25,410 bbl.

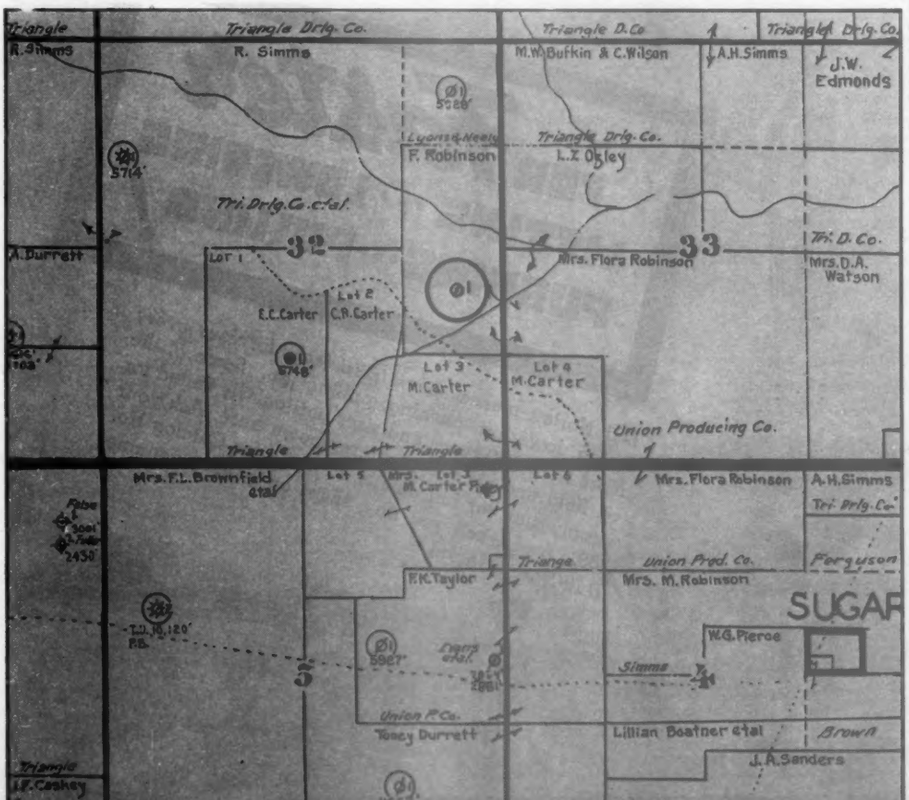
ARKANSAS COMPLETIONS

Wildcat—Union County

Barnsdall Oil Co.'s No. 1 Cameron, C SW NW Section 36-19-17, top of Buckner 8,810 ft., top of oolitic lime 9,025 ft., top of porous lime 9,029 ft., total depth 9,069 ft., dry and abandoned.

Magnolia—Columbia County

Normandie Oil Co.'s No. 1 C. E. Crumpler, 495 ft. north and 660 ft. east of SW cor. SE¼ Section 18-17-19, completed, no gage, top of Buckner 7,348 ft., top of Smackover 7,460 ft., top of porosity 7,493 ft., 7-in. casing set at 7,508 ft., total depth 7,521 ft. Shell Oil Co., Inc.'s No. 2 D. H. Harris, C SE NE Section 19-17-19, 870 bbl., ¼-in. choke, casing pressure 1,325 lb., tubing pressure 1,150 lb., total depth 7,622 ft., perforated at 7,530-54 ft., 7,568-91 ft., and 7,605-11 ft. Standard Oil Co. of Louisiana's No. 2 Booth, 660 ft. east and



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The Sugar Creek Syndicate's No. 1 Robinson, indicated by the large circle, marks a northeast extension to oil production in the Travis Peak formation at Sugar Creek, Claiborne Parish, North Louisiana. It flowed 600 bbl. in 22 hours

560 ft. south of NW cor. SW SE Section 24-17-20, 912 bbl., ½-in. choke, casing pressure 450 lb., tubing pressure 900 lb., total depth 7,590 ft.

NORTH LOUISIANA COMPLETIONS

Caddo—Caddo Parish

Mrs. O. P. Clements' No. 2-B Caddo Levee Board, Section 5-20-16, pumping 3 bbl. of oil and 10 bbl. of salt water, total depth 2,305 ft. Ferguson & Page's No. 3 Pala Oil Co., Section 1-20-16, flowing 100 bbl. through open tubing, acidized with 4,000 gal., total depth 1,485 ft. Gailbraith & Mealey's No. 19 Raines, Section 22-21-15, an 80-bbl. well, total depth 1,616 ft., acidized with 4,000 gal. Magnolia Petroleum Co.'s No. 29 Dillon, Section 24-21-15, pumping 26 bbl. of oil and 10 bbl. of salt water, total depth 1,675 ft. J. F. Mechem's No. 2 Crystal fee, Section 14-21-16, 500,000 cu. ft. of gas, total depth 2,283 ft. J. Ray Murray's No. 1 Slattery, Section 21-21-15, pumping 5 bbl. of oil and considerable salt water, total depth 1,700 ft.

Sugar Creek—Claiborne Parish

Sugar Creek Syndicate's No. 1 Robinson, 690 ft. west and 570 ft. south of NE cor. NE SE Section 32-20-5, 600 bbl. in 22 hours, 1-in. choke, tubing pressure 50 lb., casing pressure 600 lb., 5½-in. casing set at 5,783 ft., perforated at 5,745-60 ft., total depth 5,816 ft.

Monroe—Morehouse Parish

Union Producing Co.'s No. 1-A Tensas-Delta, 1,894 ft. west and 1,584 ft. south of NE cor. SE¼ Section 8-22-4, total depth 10,475 ft., plugged back to 2,250 ft., perforated casing at 2,163-2,225 ft., completed for 2,362,000 cu. ft. of gas, rock pressure 1,000 lb., total depth 2,353 ft.

Zwolle—Sabine Parish

Lee Whitehurst's No. 1 Summers, 1,210 ft. north and 440 ft. west of SE cor. NE¼ Section 14-7-13, pumping and flowing 100 bbl., total depth 2,581 ft.

EAST TEXAS BORDER COMPLETIONS

Wildcat—Harrison County

M. & H. Oil Co.'s No. 1 Vaughn, A. P. Hope Survey, top of Tokio at 2,347 ft., total depth 2,360 ft., dry and abandoned.

Smithland—Marion County

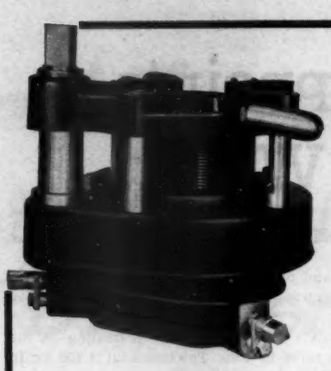
J. D. Reynolds' No. 6-A Terry estate, W. Coore Survey, pumping 14 bbl., total depth 2,517 ft.

Land Leasing Rules May Be Amended

DENVER, Colo., Feb. 12.—The bill introduced in the United States Senate by Sen. Hiram Johnson extending prospecting permits on government land to December 31, 1940, upon application to the secretary of the interior, puts into blanket form a movement which was under way for permittees under certain conditions to be granted special relief. The measure will amend the Greever-O'Mahoney amendatory act to the leasing law of February 25, 1920, which was adopted in 1935. Under the 1935 amendment all permits expired at the end of 1939 and permittees were given the opportunity to exchange permits in good standing for leases carrying higher royalties. Permittees had a movement under way for special relief where a unit agreement was in process of approval or drilling requirements had been completed.

The Johnson bill will extend the permits for another year and in instances where they expired at the end of 1938 for 2 years. Such a program will enable the Interior Department to clear up the permit situation in regard to land upon which nothing had been done and at the same time give an opportunity for granting relief under special circumstances.

The oil men in the Rocky Mountain area, where there are extensive areas of federal land already under government control are seeking the cooperation of Mid-Continent and Texas interests who are opposing the enactment of the Cole bill. Those districts have little or no government land, but are threatened with government control. The public-land states already have extensive federal control which it is believed is holding back prospecting for new fields. The appearance of high officials of public-land states in Washington in opposition to the Cole measure is expected to bring about the cooperation of the Mid-Continent and Texas officials in seeking relief from present government restrictions.



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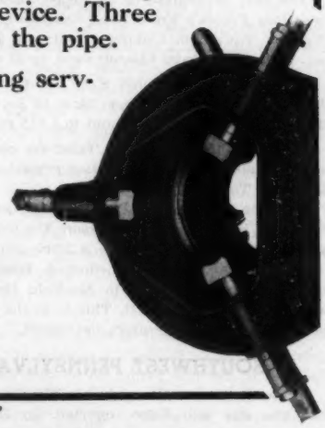

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MID-CONTINENT AREA MAP
Shows oil and gas fields in color with state indexes, giving official field names and location. Covers New Mexico to Alabama, Nebraska to Gulf. Scale 1"=12 miles. Size: 82" x 108".

UNITED STATES MAP
Shows oil and gas fields in color with official field names. Scale: 1"=40 miles. Size 48"x78".

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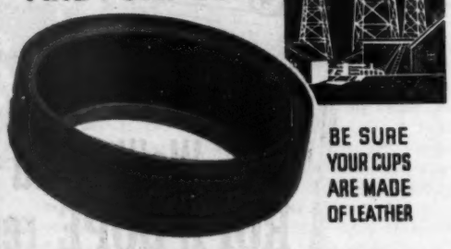

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Oriskany Test Disappoints in Jackson County, W. Va.

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Feb. 10.—In Jackson County, West Virginia, the test of Joe Rubin and others on the Henry Morrison farm 2 miles west of Lockhart in Grant district was completed, and although a gas well, was disappointing. The Corniferous lime was topped at 4,047 ft.; Oriskany sand at 4,782-4,815 ft.; gas gaging about 35,000 cu. ft. a day before the shot at 4,786-87 ft. After a bomb shot the well gaged about 400,000 cu. ft. a day, or considerably less than the discovery well on the D. P. Curry farm to the south.

SOUTHEAST OHIO

The best completion in Southeast Ohio for the week was Ray Penick's No. 3 Fred Eshelman, in Section 18, Newton Township, Licking County. It is a 1,500,000-cu. ft. gas well from Clinton sand, total depth 2,596 ft.

In Athens County Ohio Fuel Gas Co. drilled a dry hole on the W. H. Morrison farm in Section 36, Rome Township, through Injun sand to 1,113 ft.

In Medina County Marine Trust Co. completed three output wells in its waterflooding project and all are in Chatham Township, and are 5-bbl. wells.

In Noble County L. A. Patton completed No. 12 Mary Shilding, in Section 9, Jefferson Township, in Berea grit at 1,760 ft. It will make a 2-bbl. pumper.

In Cuyahoga County Benedum & Trees are drilling on the Greenwood farm in Mayfield Heights village, and have reached 1,900 ft. This is in the Newburg gas pool, which these operators developed.

SOUTHWEST PENNSYLVANIA

In the Southwest Pennsylvania district two oil wells and one gas well were reported. In Butler County Heck, Larkin and others' test on the G. Jeuther farm in Middlesex Township, was good for 10 bbl. a day from sand at 1,820 ft.

In Allegheny County J. C. Trees is drilling on the E. V. Babcock farm in Pine Township, at 1,700 ft. In Franklin Township Harbison and others had reached 1,350 ft. on the Brown farm. In Ohio Township Otto Dairy Co. is drilling on its fee below 900 ft. In South Fayette Township Equitable Gas Co. is drilling at 1,608 ft. in the J. Hickman test.

Armstrong County

In Plum Creek Township T. W. Phillips Gas & Oil Co. made location on the James Ceasna farm. Equitable Gas Co. made a location on the Agnes Prugh farm. Peoples Natural Gas Co. is rigging up the Frank Smith test.

In Kittanning Township Edward Young is down 3,400 ft. in the Hugh Blair test.

Greene-Fayette

In Greene Township, Greene County, Equitable Gas Co. made a location for a second test on the Hugh Keenan farm. This company completed deepening No. 1 on the Cowell farm at 3,181 ft. with a final gage of 26,000 cu. ft. a day.

In Fayette County Duquesne Gas Co. has material on the ground for No. 3 John Demaske, in Nicholson Township.

Indiana-Clarion-Westmoreland

In Indiana County T. W. Phillips Gas & Oil Co. completed a 30,000-cu. ft. gas well on the Paul S. White farm in Washington Township at 3,537 ft., or through the Bradford sand and into the Thirty Foot sand.

In Clarion County T. Swartzfager has the rig up on the C. A. Swartzfager farm. T. W. Phillips Gas & Oil Co. made a location for No. 3 T. C. Blair. Both are in Porter Township.

In Westmoreland County Apollo Gas Co. bridged the test on the D. M. Jones farm in Allegheny Township at 52 ft. and will spud to straighten the crooked hole.

Washington County

In South Franklin Township, Washington County, A. V. Lewis and others are completing the second test on the Sarah W. Phelan farm at 3,038 ft. with the Fifth sand topped at 3,022 ft.; oil at 3,032 ft., which filled up the 5⅛-in. casing 2,300 ft. in 5 hours. Here, Foley and Williams are fishing for tools at 980 ft. in No. 3 Rankin Clark. Union Gasoline & Oil Corp. are ready to start No. 828 C. T. Conn. In Amwell Township Shivers and others started deepening No. 1 Thomas J. Horn from 1,885 ft.

In North Strabane Township Keystone Drilling Co. started deepening No. 1 H. W. Davidson, beginning at 1,875 ft. In Somerset Township Equitable Gas Co. is down 2,325 ft. in the Weir heirs test. In Hanover Township Direck Gas Co. is down 850 ft. in No. 4 John Direck.

Deep Tests

On Chestnut Ridge in Fayette County, the test of the New Penn Development Co. on the Piedmont Coal Co. tract in North Union Township, is still at the depth of 6,800 ft. and putting 1,500,000 cu. ft. of gas into the line from the Onondaga chert. As soon as the gas is not needed in the line the hole will be deepened. In Maryland this operator is having difficulty in its test on the Humberson farm on the Accident dome in Garrett County. At a depth of about 5,400 ft., there has been considerable caving and although cemented and recemented, the hole is going crooked.

On Laurel Ridge in Stewart Township, Fayette County, this operator and E. G. Mueller are drilling at 5,081 ft. on the Gregg L. Neel farm, and are making good time.

(Continued on Page 93)

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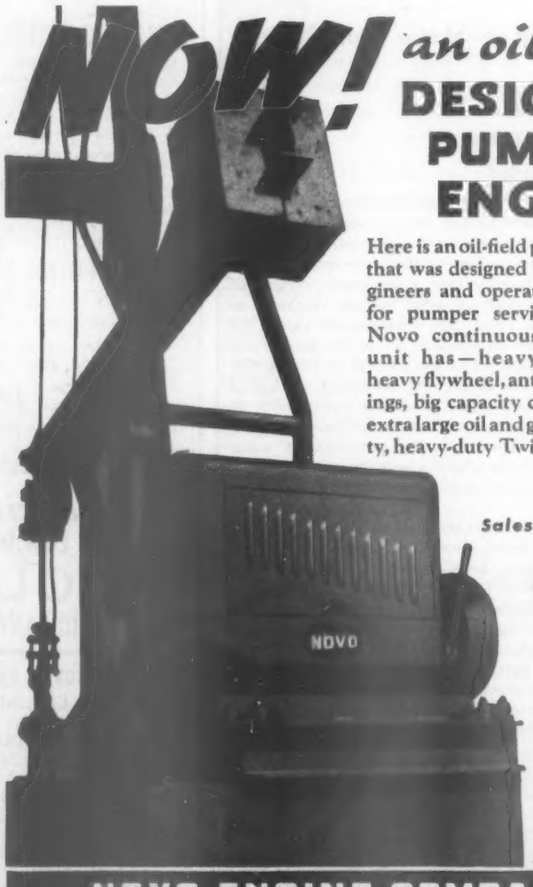

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North and East Texas

By D. H. STORMONT

Smith County's Trinity Sand Oil Discovery Is Still Testing

WICHITA FALLS, Tex., Feb. 12.—Deepening of southeastern Wichita County's prospective pool opener of last week, together with wildcat locations and abandonments through North Texas, were the features in the oil news of the past week. Four miles west of Wichita Falls, in Wichita County, Bert Ligon's No. 2 C. F. Collins, J. T. Tyler Survey, Abstract 586, which indicated a field opener when showings of oil were found from 4,280 to 4,301 ft., was being prepared for deepening to contract depth of 4,650 ft. as the week closed. Drilled as a "tight" well, little information as to the outcome of its initial tests was reported. Plug was drilled from casing at 4,280 ft. and when bailed to the bottom no oil was found according to available information. The wildcat is about 5 miles west and slightly north of Continental Oil Co.'s two small producers on the State Asylum lands just south of Wichita Falls.

A new 5,590-ft. wildcat location, together with two deep abandonments, was reported in southern Archer County. Deep Rock Oil Corp. staked No. 1 J. H. McCarty, projected 5,500-ft. or Ellenburger-lime test, 5½ miles northeast of Megargel. It is 330 ft. from the north and west lines of Block 21, Charles C. Brown Survey, Abstract 20, on acreage assembled by C. W. Clark of Wichita Falls. It will be the deepest test drilled in the Megargel area, and is expected to draw much attention.

Failing to find commercial production in drilling to a total depth of 5,279 ft., W. D. Hamilton's No. 5 Graham, S. Abercrombie Survey, 1 mile northwest of Anarene, was abandoned in the lower Bend series. Also failing to find production was Perkins & Colum's No. 183 Falls County lands, Block 21, Falls C.S.L. Survey, 4 miles southwest of Anarene. It was plugged at a total depth of 5,065 ft. with no shows reported.

After perforating, testing, then cementing off several sections between 3,222 ft. and 3,497 ft., Clay County's long-testing discovery well of Shell Oil Co., Inc., on the Henderson lands is preparing to plug back further. Located in the extreme southwestern corner of the county and in Section 2605, T.E.&L. Survey, production has failed at every attempt in the three best zones of possible production logged between 3,200 and 3,578 ft. Operators were preparing to plug back and perforate casing above 3,220 ft. as the week closed. L. T. (Bobby) Burns, Wichita Falls, has two outpost locations staked but not started, one being northeast of the Shell test and the other northwest. Both are about ½ mile from the indicated discovery.

Following the large block of acreage acquired by L. T. Burns just south of Shell Oil Co., Inc.'s block embracing its No. 1 Henderson, Burns is reported to have staked another location in the general area and on the new block. It will be No. 1 T. Watson, 330 ft. from the north and east lines of the SW¼ Section 2639, T.E.&L. Survey, Clay County. It is contracted to 5,200 ft. The location is 3 miles northeast of Antelope and just north of the Jack County line. It is 2½ miles southeast of Shell's No. 1 Henderson.

With Clay County's active wildcat campaign spreading steadily south, a new 3,500-ft. location was made in north central Jack County by Hiland R. Smith, of Dallas, for No. 1 I. G. Yates and C. C. Brant, 1,180 ft. from the south and east lines of the Johns Holderman Survey, Abstract 268, 6 miles northwest of Jacksboro.

Jack County's possible new field opener, Paul P. Steed and Joe B. Cooper's No. 1 W. R. Mathis, J. H. Nesmith Survey, Abstract 1562, 6 miles southwest of Jacksboro, was preparing to drill plug from casing as the week closed. Oil string was cemented on top of sand drilled from 2,870-83 ft., total depth.

Foard County was given a new wildcat when Ohio Oil Co. staked its No. 1 M. E. Rasberry, 1,980 ft. from the north and east lines of Section 26, S.P. Survey, 10 miles northwest of Crowell. It is on a block of 14,000 acres. Contract has been let for Foard County's other recent deep wildcat staked by Domain Oil Co. of Fort Worth. It is No. 1 Worsham & Wilson, on a 101-acre tract in the Marshall University Survey, 11 miles southwest of Crowell. Drilling contract to 4,500 ft. was let to Fred Pool of Abilene, who will move in a rotary for immediate drilling.

NORTH TEXAS COMPLETIONS

Archer County

Guy J. Brown and others' No. 4 J. J. Perkins, 985-1,022 ft., 10 bbl. Chapman & McFarlin's No. 7 L. F. Wilson C, 4,324-94 ft., 644 bbl. Cox & Hamon's No. 2 O. T. Anderson, 4,398-4,415 ft., 396 bbl. Bert L. Ligon and others' No. 3 Dr. J. A. Little A, 4,313-85 ft., 1,425 bbl. Bert L. Ligon's No. 1-S J. H. White E, 1,402-04 ft., 50 bbl. Petroleum Production Co.'s No. 3 L. F. Wilson McCrory, 4,327-59 ft., 1,433 bbl. Shell Oil Co.'s No. 2 J. H. Turbeville, 1,535 ft., dry.

Baylor County

British American Oil Producing Co.'s No. 7 F. C. Green D, 2,559-69 ft., 814 bbl.

Clay County

E. N. Costley and others' No. 6 C. T. Taylor D, 1,275 ft., dry. Duncan, Arnhold & Duncan's No. 17 T. P. Duncan, 1,174-90 ft., 167 bbl.

Cooke County

Bridwell Oil Co.'s No. 4 J. Flusche B, 755-80 ft., 10 bbl. L. C. Heydrick's No. 1 Mrs. W. Franklin, 100 ft., temporarily abandoned. Kingery Brothers and others' No. 1 J. Flusche, 999-1,013 ft., 75 bbl. Sun Oil Co.'s No. 1 Fred Snuggs, 4,901-17 ft., 960 bbl.

Jack County

Champlin & Bass' No. 3 C. P. Gahagan A, 3,126-70 ft., 376 bbl. Harper & Gillespie's No. 1 O. Loving, 3,252 ft., dry. M. L. Whitsitt's No. 1 M. Hoefle, 462 ft., dry.

Montague County

Sunray Oil Co.'s No. 1 J. B. Burnett, 5,224-35 ft., 1,272 bbl.

Wichita County

L. T. Burns' No. 1 Burk Rexford, 1,652 ft., dry. C. O. Davis' No. 1 O. M. Jones, 3,975-4,089 ft., 1,400 bbl. E.C. Oil Co.'s No. 5 A. W. Burnside, 3,911-4,075 ft., 560 bbl. E.C. Oil Co.'s No. 22 Mrs. Anna Mangold, 3,770-3,855 ft., 1,024 bbl. Fain-McGaha Oil Corp.'s No 6 E. P. Griffin A, 3,824-53 ft., 725 bbl. Fred M. Gates' No. 1 C. Birk, 450-57 ft., 6 bbl. J. C. Jennings' No. 1 Will Burnett, 3,950-4,038 ft., 408 bbl. Mitchell Oil Co.'s No. 2 Mitchell B, 3,855-72 ft., 403 bbl. Mogren & Anderson's No. 6 K. T. Goetze, 530 ft., dry. Underwood Oil Co.'s No. 9 W. P. Rogers, 1,198-1,207 ft., 25 bbl. Underwood Oil Co.'s No. 10 W. P. Rogers, 1,235 ft., dry. Underwood Oil Co.'s No. 11 W. P. Rogers, 1,481 ft., dry. Underwood Oil Co.'s No. 12 W. P. Rogers, abandoned location.

Wilbarger County

Lawson & Leavell's No. 4 W. T. Waggoner T, 1,397 ft., dry.

Young County

W. G. Horn's No. 7 W. B. Gregg, 715-36 ft., 35 bbl.

EASTERN TEXAS

DALLAS, Tex., Feb. 12.—Discovery of a new 8,000-ft. middle Trinity series oil field in northeastern Smith County led all other development from the eastern Texas district during the past week.

The discovery is Shell Oil Co., Inc.'s No. 1 Henry Campbell, P. Lively Survey, 2 miles northeast of the 2-year-old discovery well on the Chapel Hill structure. The No. 1 Campbell came in early in the week with a flow of 100 bbl. of oil in 7 hours through perforations in casing in the Pettit zone of basal Glen Rose from 8,058 to 8,068 ft. With distillate production having been found at various places throughout the district during the past few years, the new Smith County discovery is the first major oil production from the Trinity series south of the Talco field in Titus and Franklin counties. A small oil producer was developed at Opelika in Henderson County several years ago. Several flows made by the new discovery early in the week rated the well at about 300 bbl. daily, but, as the week closed, pressures had declined to such an extent that company officials announced more perforations would be made slightly above the 8,058-68-ft. section.

Oil production of some degree is believed possible, as early in the week it kicked off under pressures of approximately 200 lb. on tubing and 300 lb. on casing and flowed 100 bbl. of oil in 7 hours Monday. As the well was opened for short flows on successive days two important facts were noted. Each time the pressures showed slightly less and the gravity of the oil slightly higher. On initial flows Monday the oil tested 39.2 gravity and as the week closed the latest flow was about 7.8 bbl. hourly of 43.2-gravity oil.

This week the crew will perforate casing from 8,040 ft. to the top of the present perforations at 8,058 ft. in an attempt to secure a greater gas volume for the well. The gas-oil ratio early in the week was 500 to 1.

Shell Oil Co., Inc., has already announced plans for orderly development of its 1,500-acre block in the area of the discovery well. In addition there are 20 leases in the area which will expire this year and 20 which expire in 1942. Leaseholders are already discussing plans for spacing rules of one well to 40 acres due to the depth.

This new oil discovery by Shell is the second well for the large Chapel Hill structure, Hunt Oil Co. having drilled the field opener about 2 years ago and found only distillate production. Exemplifying the immensity of the structure, Shell's well is 2 miles north of the Hunt well and fears were felt several weeks ago that the location was not far enough down the flank to best test any possible oil-bearing stratum. Hunt Oil Co.'s well was No. 1 Bradley, T. P. Payne Survey, completed at a total depth of 7,325 ft. for 15 bbl. of distillate daily with about 1 bbl. of oil.

Meanwhile deepening continued in the Houston County wildcat being drilled also by Shell Oil Co., Inc. It is the No. 1 Dorsey, M. Sallas Survey, south of Percilla and in the northern part of the county. It was last reported drilling below 10,213 ft. and seeking the Pettit horizon found at the Chapel Hill discovery.

East Texas Field

New completions in the East Texas field continued at a high level during the week, but no new operations were listed. Of the completions, three were in Gregg County, two in Upshur County, and one each in Rusk and Smith counties.

EAST TEXAS COMPLETIONS

(1-hour gage)

Gregg County—Longview Area

John Thomas' No. 3 G. E. McGrade, 3,616-19 ft., 50 bbl.

(Continued on Page 94)

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To Fit Casing	No. Blades
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5" — 5-39/64" OD	5
5½" — 6-1/8" OD	5
5¾" — 6-3/8" OD	5
6" — 6-4/64" OD	6
6⅝" — 7-1/4" OD	6
7" — 7-5/8" OD	6
7⅝" — 8-15/64" OD	7
8⅝" — 9-19/32" OD	8
9⅝" — 10-7/16" OD	9
10¾" — 11-9/16" OD	10
11¾" — 12-19/32" OD	11
13⅜" — 14-7/32" OD	13
16" — 16-27/32" OD	16

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Among the Drilling

GRADY VAUGHN and Big West Drilling Co., both of Dallas and Tulsa, Mr. Vaughn being president of the latter drilling firm, have received contracts for an 18-well drilling campaign in the Atlantic area in Columbia County, South Arkansas. The deal was made with the partnership of Tide Water Associated Oil Co. and Seaboard Oil Co. and involves the extensive holdings of the companies in the field. The drilling contractors announced that three rigs would be moved in immediately and would be kept running continuously. The Tide Water-Seaboard partnership opened the field nearly 2 years ago, but development has been rather slow. The field now consists of six wells producing from the 8,200-ft. Smackover-lime pay.

BILL RUSSELL, Gainesville, Tex., is preparing to start a 1,000-ft. wildcat test in southwestern Cooke County, North Texas, for Mudge Oil Co. of Dallas. The wildcat will be No. 1 Sam Seagraves, O. M. Gray Survey, Abstract 415. The area is south of Hood and east of Leo.

OSAGE DRILLING CO., West Texas operating and contracting firm, has brought in an important outpost well in Yoakum County's Wasson field. The well was drilled for L. E. Hults, Fort Worth, and is on the Willard lands, NW cor. NE¼ Section 805, Gibson Survey. Brought in flowing an estimated 500 bbl. daily, saturation was drilled from 4,940 to 5,170 ft. Upon completion of this well Mr. Hults plans to move 990 ft. east and slightly south for his No. 2 Willard. The well is south of the main body of the Bennett area and east of the main portion of the Wasson field.

T. A. CARLTON abandoned No. 1 J. J. Sweeney, a wildcat northeast of the Fairbanks field, Harris County, Texas.

ARROW DRILLING CO., Odessa, Tex., has extended ½ mile to the east the central portion of the North Cowden field of Ector County, West Texas. The drilling firm's No. 1 Midland Farms, Section 100, W. L. Callahan Survey, is bottomed at 4,480 ft. and reported flowing by heads every 1½ hours. It has been estimated at 300 bbl. daily, natural.

MURRAY-GRIFFEY Drilling Co. is moving rig from the Plains Production Co.'s No. 1 Milner in the Tinsley field of Yazoo County, Mississippi, to a wildcat test, Whigate Oil Co.'s No. 1 Robertson, located 1½ miles southeast of the field.

ROWAN & HOPE, drilling contractors of San Antonio, Tex., have a new contract on the F. E. Courson's No. 1 Bailey, Jefferson Davis County wildcat in Mississippi. The test will be carried to 6,000 ft. instead of the originally contracted depth of 4,000 ft.

LATEX DRILLING CO. is beginning Eureka Petroleum Co.'s No. 1 W. H. Cooper, Sharkey County, Mississippi, wildcat located on a 10,000-acre block. The contract depth is 4,000 ft.

SPRENGER BROTHERS, Tripp Building, Allegan, Mich., ran casing

Filling slush pits in Illinois after completion of well by rotary method

WHO'S WHO in MICHIGAN

The Official Directory of Michigan Oil and Gas Industry received this review in the Journal:

"This is a directory of individuals and business firms in the Michigan oil fields. A classified section is included which is arranged according to branches of the industry. The directory is up to the minute and should be of vital interest to anyone having need of information about oil and gas activities in the Wolverine State."

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Field Geology—LAHEE 5.00

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Extend your library of sound reading with any one or all of these books. They will be sent c.o.d. if desired; otherwise, full payment should accompany your order.

Book Department

The Oil and Gas Journal
Tulsa, Oklahoma

last week on the company's No. 1 Graveling, SW NE SE Section 34-4n-14w, an extension to the Overisel field of Allegan County, Michigan. They have also staked location for the No. 1 Van Buren, SW SE SW Section 35-4n-14w, about a half mile to the southeast. Production in the area is from the Traverse lime at an approximate depth of 1,420 ft.

JAMES B. O'MARA, Shawnee, Okla., drilling contractor, will use rotary tools to drill a Wilcox-sand wildcat test for Harry G. Newman and William Heitgras, Tulsa operators, in SW SW NE Section 28-15-1e, in Logan County, Oklahoma, and south of the Coyle pool.

C. R. GALEMORE, Moberly, Mo., who has a 16,000-acre lease block in Randolph County, Missouri, has given drilling contract for a test on the block to Judd & Son, Kansas City drillers. Location will be in either Section 20 or 21-52-14w.

EMMETT VEEDER, Cherryvale, Kans., drilling contractor, has been directed to plug back and complete McLaughlin Sons, Inc.'s No. 1 McLaughlin, Section 4-10-20, Jefferson County, Kansas, as a Bartlesville-sand gas well, after a long fishing job was followed by another. He will drill another deep oil test on the McLaughlin block, it was reported.

MORRIS & HAMILTON are moving another rig to the Rincon field, Starr County, Texas, where contract was received for the drilling of several wells for W. R. Davis Co.

HEYSER, HEARD & CLARDY received contract for five wells to be drilled in the Sun field, Starr County, Texas, for the Sun Oil Co.

GEORGE ECHOLS extended production in the north-extension area of the South China, Texas, field with the completion of his company's (Titanic Oil Co.) No. 1-B Guiterman. Another operation was started due north of production, while other operations are located in Liberty and Brazoria counties, all of which are being drilled for Titanic Oil Co.

FALCON-SEABOARD Drilling Co. spudded Fidelity Oil & Royalty Co.'s No. 1 Craigen, a projected 9,000-ft. wildcat located southeast of Hamshire in Jefferson County, Texas. On the Napoleonville dome, Assumption Parish, Louisiana, Falcon-Seaboard Drilling Co.'s No. 1 Simoneaux is being spudded.

TRINITY DRILLERS, INC., of San Antonio, Tex., opened a branch office at Houston, Tex., last week to take care of the company's operation in the Upper Texas and Louisiana Gulf Coast district.

A. T. McDANNALD will move a rotary northwest of Pearland, Brazoria County, Texas, for McDannald Oil Co.'s No. 1 S. A. Hatfield. The location is in Lot 51, R. B. Lyle Survey. Contract depth is 8,000 ft.

C. R. Rogers, Shell Oil Co., Inc.; J. H. Lynch, superintendent Delta Drilling Co., who drilled well, and "Red" Brinkley, National Tank Co., stand by separator as oil from Shell's No. 1 Campbell, first crude producer in Chapel Hill area, Smith County, East Texas, flows into tanks

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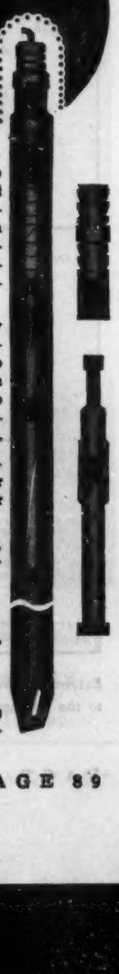

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Ector, Pecos, Andrews Tests Approaching Crucial Depths

By
D. H. STORMONT

MIDLAND, Tex., Feb. 12.—Crucial developments in several of West Texas' most closely watched wildcat tests held attention in that district as the week closed. Structurally-high tops were reported for wildcats in Ector and Pecos counties, while wildcats in Crane and Andrews counties continued drilling, after reporting tops of markers favorably.

In northwestern Ector County, north of the Cummins area of the Goldsmith field, M. A. Grisham's No. 1 R. B. Cowden, Section 4, Block 45, Township 2n, T.&P. Survey, was last reported drilling below 3,552 ft. Early in the week the wildcat reported the top of the anhydrite at 1,490 ft. and the Yates sand at 2,760 ft., both tops being slightly higher than in two small oil wells drilled in the general area several years ago. The wildcat is contracted to test the regular Ector County pay but, should commercial production fail, drilling will continue to the deep Holt horizon at about 5,200 ft.

Also in Ector County and extending the deep Holt horizon 2½ miles to the north, Stanolind Oil & Gas Co.'s No. 1 W. F. Cowden, Section 4, Block 43, Township 1n, T.&P. Survey, northwest of production in the North Cowden field, was still cleaning out and testing as the week closed. Approximately 4 gal. of oil per hour, together with rotary mud, was being bailed from the hole. Operators believe the well will make as good a producer as the three other deep-horizon tests, for none of them showed any great amount of free oil until the section was acidized. No. 1 Cowden found saturation and porosity in cores from 5,164 to 5,194 ft., total depth. Five and one-half inch casing is cemented at 5,139 ft.

Another Ector County wildcat being closely watched is Landreth Production Corp. and Shell Oil Co., Inc.'s No. 1-A Johnson, Section 43, Block 43, Township 1s, T.&P. Survey, wildcat in the central part of the county. The test was last reported drilling below 4,985 ft., and contracted to the deep Holt pay.

In Pecos County, ¼ mile southwest of the productive Ellenburger-lime Apco field, Skelly Oil Co.'s No. 1 J. S. Masterson, 1,980 ft. from the northwest line and 660 ft. from the southwest line of Section 104, Block 10, H.&G.N. Survey, reported top of the Ellenburger lime 44 ft. higher than in a large producer 1,320 ft. to the northeast. The Ellenburger was topped at 4,560 ft. (2,123 ft. below sea level), and 44 ft. higher than the top picked at 4,596 ft. or 2,167 ft. below sea level in the Magnolia Petroleum Co.'s No. 1 M. I. Masterson. After drilling 25 ft. into the lime, operations were halted and casing was cemented at 4,562 ft. Only coarsely crystalline dolomite with streaks of rounded, frosted quartz grains were found in the 25 ft. of penetration. No showing of oil was found. Plug is scheduled to be drilled early this week.

Also in Pecos County Humble Oil & Refining Co.'s No. 1 Young, Ordovician wildcat in Section 33, Block 10, H.&G.N. Survey, 8½ miles northwest of the Apco field, was last reported reaming hole at 4,632 ft. Total depth is 4,787 ft. and still in Permian-age rocks. With the Ordovician not expected for another 225 ft., operators announced that, correlated with markers in the lower Permian rocks, the well was checking about 35 ft. higher than Magnolia Petroleum Co.'s No. 2 Abell-Eaton, deep Ordovician failure to the east.

In south central Andrews County and projected to the deep Holt horizon recently extended to within 7 miles of the drill site, Tom F. Hunter and Richmond Drilling Co.'s No. 1 University, wildcat in Section 21, Block 11, University lands, continues below 3,200 ft. Little is yet known of the wildcat's structural position on the deeper strata. Early in the week the top of the Yates sand was reported at 2,837 ft., which places the test 73 ft. lower than a structurally high failure 2 miles to the southeast. This wildcat is the northern-most attempt yet made to find production in the deep Holt horizon. The test is on the direct trend northwest from the discovery area and from Stanolind's recent extension.

North Basin Area

Providing a major spread for the link area of the Wasson field with the Bennett area, L. E. Hults and Osage Drilling Co.'s No. 1 Willard, NW NE Section 805, on the southeast edge of the large field, came in during the week for an estimated 500 bbl. daily, natural. With acid treatment planned before final completion, the well had its pay section from 4,940 ft. to the total depth of 5,170 ft. It is about ¾ mile east of production in the Denver sector, and about a mile south of production in the Bennett area.

Extending the Seminole field of Gaines County ¼ mile south, Skelly Oil Co.'s No. 1 Mann, Section 220, G.W.T. Survey, reported a flow of 47½ bbl. of oil in 1 hour after second-stage acid treatment. The well had flowed 32 bbl. per hour naturally. It is bottomed at 5,245 ft.

Decision to relinquish three large blocks of wildcat acreage in the far north-basin area was reached by Gulf Oil Corp. last week. The firm's tracts were in Garza, Kent, Crosby, and Dickens counties, and consisted of the large Swenson ranch. Approximately 71 sections made up the large blocks, about 45,000 acres altogether. The company drilled two deep failures on the acreage in the past three years. First was the No. 1-C Swenson, northeastern part of Garza County, and the second No. 1 B. Swenson in southeastern Crosby County. Both were 8,000-ft. tests and had several showings of oil.

WEST TEXAS COMPLETIONS

(24-hour gages)

Cochran County

Duggan field: Atlantic Refining Co.'s No. 2 Boyd, 4,970-5,050 ft., 523 bbl.

Ector County

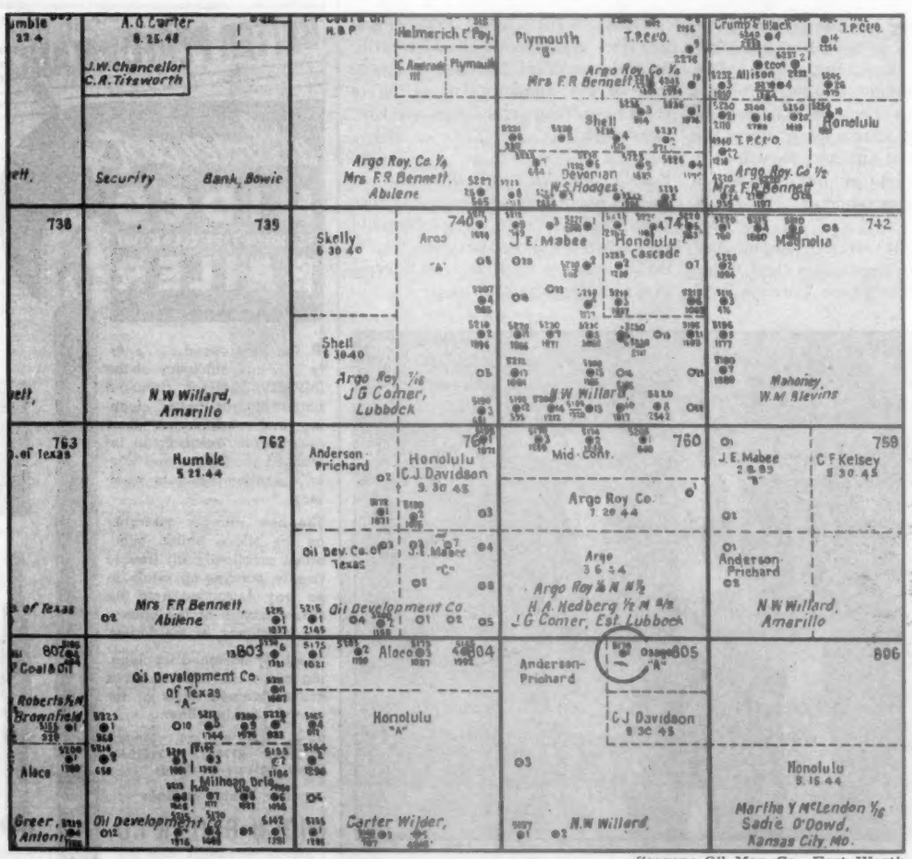
North Cowden field: Barnsdall Oil Co.'s No. 4 R. W. Smith, 4,075-4,195 ft., 1,104 bbl. Stanolind Oil & Gas Co.'s No. 44 E. F. Cowden, 4,070-4,170 ft., 373 bbl.

Smith field: Phillips Petroleum Co.'s No. 71 C. Cowden, 4,129-70 ft., 1,563 bbl. Phillips Petroleum Co.'s No. 74 C. Cowden, 4,122-66 ft., 3,036 bbl.

Foster field: Stanolind Oil & Gas Co.'s No. 32-D Witcher, 4,045-4,300 ft., 1,153 bbl.

Pecos County

Lehn field: Sahara Oil Corp.'s No. 8 Sullivan, 1,680-92 ft., 20 bbl. Sahara Oil Corp.'s No. 3-B Sullivan, 1,652-80 ft., 102 bbl. Sahara Oil Corp.'s No. 9 Sullivan, 1,659-75 ft., 129 bbl.



Zingery Oil Map Co., Fort Worth

Extending the "link" area of the recently combined Wasson and Bennett fields of Yoakum County about a mile to the southeast, L. E. Hults and Osage Drilling Co.'s No. 1 Willard has come in for approximately 500 bbl. daily, naturally. Acid treatment is planned for the well before completion

Scurry County

Sharon field: Petroleum Producers Co.'s No. 1 T. J. Sterling, 2,297-2,433 ft., 82 bbl.

Upton County

McCamey field: Texas Pacific Coal & Oil Co.'s No. 2 J. F. Lane, 1,990-2,009 ft., 303 bbl.

Winkler County

Emperor field: Duquesne Oil Corp.'s No. 1 Morton, 2,708-2,908 ft., 23 bbl.

Ward County

Pecos Valley field: W. A. Black & Sons' No. 4 Texas Cotton Ind., 1,898-1,913 ft., 196 bbl.

Magnolia field: Mid-Continent Petroleum Corp.'s No. 3 Sealy, 3,015-73 ft., 546 bbl.

Estes field: Gulf Oil Corp.'s No. 128 Estes, 2,516-2,665 ft., 816 bbl.

Yoakum County

Wasson field: Honolulu Oil Corp.'s No. 2 Oil Development Co., 5,010-5,190 ft., 1,015 bbl. Mabee Oil & Gas Co.'s No. 17 Willard, 4,990-5,212 ft., 1,081 bbl.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Feb. 12. — Stephens County's Stribling field centered the attention for another week in the West Central Texas district, as a ½-mile-west extension was completed. Also drawing attention in Stephens County was a new location in the relatively undeveloped R. W. Rich area in the extreme southwestern part of the county. One-half mile west of production in the Stribling field Grace & Woods completed No. 1 Joe Beatty, NE cor. W. M. Bales Survey, for 150 bbl. of oil daily after an acid treatment in the lime pay. Saturation was drilled at 3,612-65 ft. and after 10,000 gal. of acid the well was put on official gage.

West of the discovery well in the Rich field J. O. Hughes, H. I. Stine and H. C. Michael spudded a test in the W. E. Pruitt farm in Section 37, Block 7, T.&P. Survey. Production will be sought from the Eastland Lake sand of the discovery well at about 3,650 ft. Rich and associates brought in the discovery well in 1938 on the M. M. Andrews lands and then moved

(Continued on Page 95)

Indiana Fields

(Continued from Page 73)

Northern Wildcats

In Randolph County Charles Godwin and others' No. 1 St. John, C NE NE Section 8-21n-12e, was drilling at 1,000 ft.

In Jay County E. K. Burke's No. 1 Outcalt, C W½ SW Section 24-22n-14e, found top of the Trenton lime at 1,079 ft., and was cleaning out to test a showing at 1,131 ft. Petroleum Corp. was drilling at 200 ft. in No. 1 Binegar, NE NE NW Section 29-24n-13e. D. Davis' No. 1 Perry, NW NW NE Section 17-24-12e, was shut down at 200 ft. while making repairs.

In Lagrange County J. W. Hunt's No. 1 Babcock, SW cor. NE¼ Section 13-17n-9e, was shut down at 1,100 ft., awaiting owner's orders.

In St. Joseph County Robert Allen Crude Oils, Inc., had machine rigged up to start No. 1 Sones, NE cor. SW SE Section 20-38n-4e.

In Knox County Hart & Williams' No. 1 Montgomery, C NE SW Section 28-5n-7w, was shut down at 1,700 ft., for orders. Newton Pipe Line Co.'s No. 1 Like, Donation 171, Township 2n-9w, was shut down for orders at 1,609 ft. M. I. T. Syndicate's No. 1 McHenry, Donation 214, Township 5n-9w, was shut down by bad weather at 3,330 ft. Michel Brothers' No. 1 Schloot, SE cor. Section 2-5n-7w, was shut down at 940 ft.

In Martin County Morris & Gilmore were moving in machine for No. 1 Thorp, SW SW SW Section 26-3n-4w. Pioneer Drilling Co.'s No. 1 Meyer, NE NE SW Section 26-2n-4w, topped Devonian at 1,731 ft., total depth 1,750 ft., and shut down for orders.

In Daviess County Fred L. Hartman's No. 1 White, C W½ NW NW SW Section 22-2n-7w, was shut down at 1,540 ft.

In Clark County N. N. Smith's No. 1 Schubnell, Grant 182 in Township 1s-6e, was shut down at 1,520 ft.

In Clay County Dorsey Oil Co.'s No. 1 Hickman, NW cor. SE SE Section 15-9n-6w, was shut down at 495 ft.

In Sullivan County Salem Oil Co.'s No. 6 Woodward, NW NW NW Section 7-8n-9w, which was drilled to 1,700 ft. and plugged back to 1,600 ft., was drilling at 1,625 ft.

In Decatur County Hoosier Public Utilities Co.'s No. 1 Schoettmer, C NE NE Section 14-9n-9e, was a small gas well at 929 ft., total depth. Same company made a location for No. 1 Aberle, C SE SE Section 11-9n-9e.

In Morgan County John M. Seip was drilling at 908 ft. in No. 1 McGraw, 320 ft. from north and east lines of SW¼ Section 19-13n-1w.

In Putnam County Stanolind Oil & Gas Co. was coring at 2,575 ft. with no showing of oil, in No. 1 Wells, C W½ NE NW Section 15-14n-5w.

In Hancock County John M. Seip topped Trenton lime at 999 ft. and was drilling at 1,015 ft. in No. 1 Brock, SW SW SW Section 6-16n-6e.

In Pike County Shirley and others made a location for No. 1 Reed, C NW SW Section 29-1n-8w.

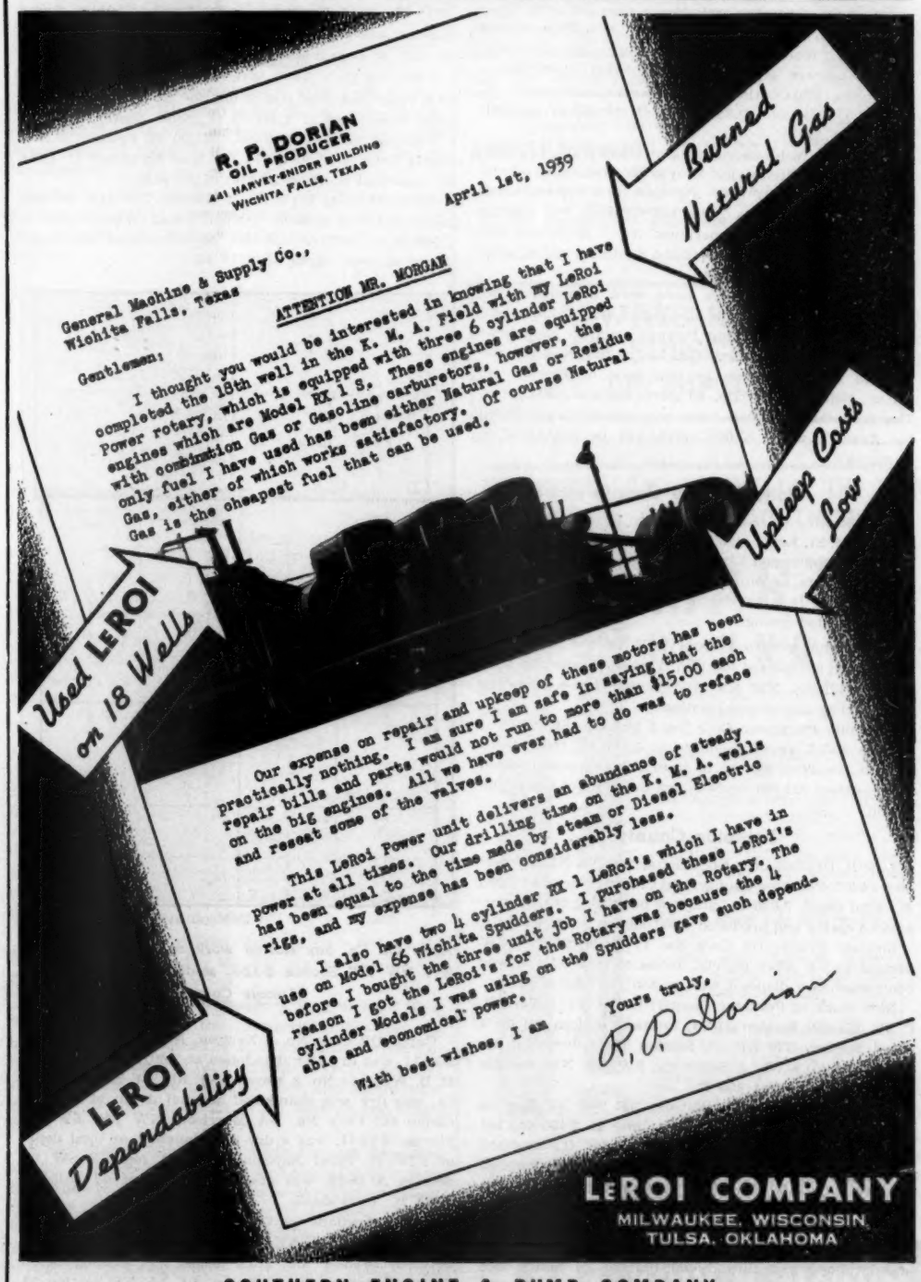
In Posey County Roberts Brothers spudded No. 3 Keck, C E½ NW NW Section 34-3s-14w.

In Marion County C. E. Jefferson and others' No. 1 Indianapolis Water Co., NE cor. SW¼ Section 15-16n-3e, which had been completed as a gas well, was acidized with 1,000 gal. under 1,400 lb. pressure. It flowed 30 bbl. of oil and acid-water in 40 hours and flowed 100 bbl. of oil the first 5 days. It was not completed.

Southern Outposts

In Vanderburg County Volkman and others' No. 1 Heldt, C E½ NE SW Section 18-7s-11w, total depth 1,932 ft., was plugged back to 1,844 ft., but salt water broke in when the plug was drilled, and the hole was abandoned.

In Spencer County Damron Brothers were drilling at 150 ft. in No. 3 Wright, C SW SW Section 20-7s-6w. Sturboise and others were drilling below 465 ft. in No. 1 Boyd, C NE NE Section 31-7s-6w. Snell and others were pumping water and a showing of oil from No. 1 Biggerstaff, SW SW SE Section 6-7s-7w, after drilling to 1,061 ft. and plugging back to 1,056 ft. Five-inch casing was set at 1,038 ft. Snell and others' No. 1 Crowder, NW cor. SW NW Section 7-7s-7w, was shut down at 820 ft. Damron Brothers' No. 2 Howard, NE SE SE Section 35-7s-7w, topped Bethel sand at 1,432 ft., and was drilling at 1,440 ft.


R. P. DORIAN
OIL PRODUCER
441 HARVEY-SNIDER BUILDING
WICHITA FALLS, TEXAS
April 1st, 1939
General Machine & Supply Co.,
Wichita Falls, Texas
ATTENTION MR. MORGAN
Gentlemen:
I thought you would be interested in knowing that I have completed the 18th well in the K. M. A. Field with my LeRoi Power rotary, which is equipped with three 6 cylinder LeRoi engines which are Model RX 1 S. These engines are equipped with combination Gas or Gasoline carburetors, however, the only fuel I have used has been either Natural Gas or Residue Gas, either of which works satisfactory. Of course Natural Gas is the cheapest fuel that can be used.
Our expense on repair and upkeep of these motors has been practically nothing. I am sure I am safe in saying that the repair bills and parts would not run to more than $15.00 each on the big engines. All we have ever had to do was to reface and reseat some of the valves.
This LeRoi Power unit delivers an abundance of steady power at all times. Our drilling time on the K. M. A. wells has been equal to the time made by steam or Diesel Electric rigs, and my expense has been considerably less.
I also have two 4 cylinder RX 1 LeRoi's which I have in use on Model 66 Wichita Spudders. I purchased these LeRoi's before I bought the three unit job I have on the Rotary. The reason I got the LeRoi's for the Rotary was because the 4 cylinder Models I was using on the Spudders gave such dependable and economical power.
With best wishes, I am
Yours truly,
R. P. Dorian
Burned Natural Gas
Upkeep Costs Low
Used LeROI on 18 Wells
LeROI Dependability
LeROI COMPANY
MILWAUKEE, WISCONSIN
TULSA, OKLAHOMA

SOUTHERN ENGINE & PUMP COMPANY
HOUSTON · DALLAS · KILGORE · BROWNWOOD
CORPUS CHRISTI, TEXAS

GENERAL MACHINE & SUPPLY COMPANY
WICHITA FALLS · ODESSA TEXAS

WESTERN MACHINERY COMPANY
ST. LOUIS, MISSOURI
SALEM, ILLINOIS EVANSVILLE, IND.

Oklahoma Operations

By
DAL DALRYMPLE

Coyle Trend in Logan County Gets Third Wilcox Sand Test

A third wildcat has been started in southeastern Logan County, Oklahoma, on a major structural trend which has been found productive in the Coyle, Langston and Meridian pools. Newman & Heitgras' No. 1 Anderson, SW SW NE Section 28-15-1e, on a small block of acreage including a farmout from Shell Oil Co., Inc., will test Wilcox sand. It will be drilled with rotary tools by J. B. O'Mara, Shawnee contractor. Nearby acreage is leased by the Shell, Gulf, Selby, Deep Rock, Mid-Continent and Sun companies and O. F. Ackley, O. M. Cole, P. Schmahl, T. N. Berry and Eli Bernstein.

Two other wildcats have been started in the same general area. Helmerich & Payne, Inc., and others' No. 1 Kramer, NW NW SW Section 24-17-1e, south of the Coyle pool on a Texas Co. farmout, was rigging up rotary tools. Same operators' No. 1 McMahon, SW SW SE Section 31-17-1e, near the South Langston area, was drilling below 3,050 ft.

Two Indian lease sales have been announced for early dates. Forty tracts of land in Kay County and three tracts in Payne and Pawnee counties have been offered for lease, sealed bids to be received at the Pawnee Indian Agency in the town of Pawnee by 2 p.m., February 29. The 43 tracts include 5,800 acres. The next Osage Indian lease sale has been scheduled for April 2, when 12,000 acres will be auctioned at Pawhuska.

Pottawatomie County

J. F. Smith's No. 1-A Brandenburg C, SW SW SE Section 34-8-4, St. Louis district, Pottawatomie County, was acidized and pumped 131 bbl. of oil and 1,500 bbl. of water in 24 hours. Dolomite was topped at 4,142 ft., Wilcox sand 4,316-21 ft., total depth, plugged back to 4,210 ft., and perforated casing.

W. F. Johnson's No. 1 Cherry, SE NE NW Section 32-8-5, was an abandoned location. Yorkan Production Co.'s No. 1 Williams, NW NW SW Section 4-10-4, Shawnee area, was an abandoned location.

Magnolia Petroleum Co.'s No. 5 Fyke G, SE NW NE Section 29-7-5, found dolomite at 4,147 ft., total depth 4,207 ft., swabbed 300 bbl. of oil in 24 hours, was acidized and swabbed 322 bbl. in 24 hours, but had not been completed.

Pontotoc County

C. & R. Drilling Co.'s No. 1 Scroggins, NE NE SW Section 34-5-7, Pontotoc County, had Cromwell sand at 2,990 ft., total depth 3,020 ft., plugged back to 2,440 ft., perforated casing and produced 4,666,000 cu. ft. of gas daily.

Sinclair Prairie Oil Co.'s No. 15 Ralls, SE NE SW Section 28-5-8, Allen district, failed to find oil and was completed as a disposal well at 840 ft., total depth.

New work in Pontotoc County: Hall's No. 1 Norvell, C S½ SE SW Section 27-5-4, location; Senora Oil Co.'s No. 4 Tucker, NW NE NE Section 35-5-4, location; Superior Oil Co.'s No. 5 Summers, SW SW NW Section 36-5-4, shut down at 450 ft.

Gulf Oil Corp.'s No. 2 Watson, NE NW NE Section 35-5-4, Bebee area, topped Viola lime at 2,426 ft., set 7-in. casing at 2,435 ft., total depth 2,542 ft., swabbed 35 bbl. of oil in 3 hours, was acidized and swabbed 232 bbl. in 24 hours, but was not completed. Senora Oil Co.'s No. 2 Tucker, NE SE NE Section 35-5-4, had Viola lime at 2,329 ft., dolomite 2,494 ft., total depth 2,564 ft., was shot, swabbed 450 bbl. of oil in 24 hours, and swabbed and flowed 409 bbl. in 24 hours, not completed. Superior Oil Co.'s No. 4 Summers, NW SW NW Section 36-5-4, found Viola lime at 2,318 ft., dolomite 2,473 ft., total depth 2,557 ft., swabbed 312 bbl. of oil in 12 hours, but was not a completion. Davis' No. 1 Chandler, NW NE SW Section 35-5-7, Francis-Steedman area, topped Gilcrease sand at 2,340 ft., total depth 2,442 ft., plugged back to 2,418 ft., was shot, swabbed an estimated 100 bbl. of oil and 100 bbl. of water in 24 hours and was being put on the pump.

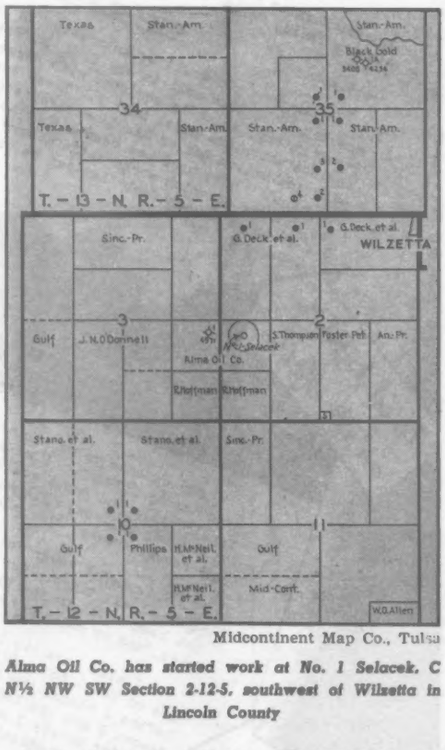
Creek County

Dunn and others' No. 4 Anthis, SE NE SE Section 34-14-10, East Tuskegee area, Creek County, found Misener sand at 3,181-93 ft., total depth, and pumped 50 bbl. of 44-gravity oil in 24 hours.

Tilley Oil Co.'s No. 2 Wright, SW NE SE Section 17-17-8, was shot and completed for 25 bbl. of oil daily from Prue sand at 2,321-39 ft., total depth.

Thomas' No. 1-A Rickard, SE SE SE Section 36-18-9, found Prue sand at 1,876 ft., was bottomed at 1,918 ft., shot and pumped 20 bbl. of oil daily.

Waite Drilling Co.'s No. 1 Garrett, NE cor. Section 25-14-10, Creek County wildcat, found Wilcox sand at 1,160-76 ft., with a hole full of water, and was abandoned at total depth of 3,188 ft.



Midcontinent Map Co., Tulsa

Alma Oil Co. has started work at No. 1 Selacek, C N½ NW SW Section 2-12-5, southwest of Wilzetta in Lincoln County

Curtis Oil Co.'s No. 1 Newton, NW NW SW Section 2-16-11, was dry and abandoned at 2,697 ft., total depth. R. B. Wright's No. 2 Meyers, NE SE SW Section 18-17-11, was dry and abandoned at total depth of 2,931 ft. Caddo Oil Co.'s No. 1-A Morrison, NW NW SW SW Section 8-18-11, was a dry abandonment at total depth of 1,705 ft. Pearl Jackson's No. 1-A fee, SE SW SE Section 30-18-12, was good for 5 bbl. of oil daily at 1,493 ft., total depth.

New operations in Creek County: Burke-Greis Oil Co.'s No. 1 Brown, NE SE SE Section 19-16-10, wildcat between Bristow and Slick areas, was drilling below 70 ft.; Shamblin's No. 2 Roller, SE NE NE Section 13-17-10, twin, spudded; Bryan's No. 1 Posey, NE NW SW Section 22-18-9, location.

LeFlore County

LeFlore Gas & Oil Co.'s No. 4 McCallip, C SE SE Section 5-8-25, LeFlore County, was dry and abandoned in a broken sand at a total depth of 2,142-2,621 ft.

Tulsa-Wagoner Counties

C. R. Minshall's No. 1 Logsdon, C N½ NE NE Section 2-19-14, Tulsa County, was completed for 1,000,000 cu. ft. of gas daily at 1,243 ft., total depth.

Hartman & Morrow's No. 1-A Secrest, NW NW SE NE Section 21-17-16, Wagoner County, was dry and abandoned at 936 ft., total depth.

Estimated Daily Production

Estimated daily production for Oklahoma for the week ended February 10, and for the preceding week was as follows:

	Barrels	
	Feb. 10	Feb. 3
Allen	5,875	5,900
Billings	6,625	6,625
Burbank	7,325	7,300
South Burbank	8,775	8,750
Balance Osage	17,000	17,000
Blackwell district	3,725	3,750
Bristow-Slick	6,350	6,375
Chandler	1,425	1,400
Crescent	2,375	2,350
Cromwell	2,975	2,925
Cushing-Shamrock	9,675	9,675
Duncan	3,700	3,700
Edmond	4,450	4,425
Fish	3,450	3,475
Fitts	19,550	20,450
Jesse	2,225	2,225
Graham-Fox	1,950	1,925
Gray	800	800
Healdton	8,850	8,875
Hewitt	3,675	3,650
Keokuk	3,150	3,175
Konawa	1,275	1,275
Lucien	8,375	8,400
Moore	2,125	2,100
Oklahoma City	100,900	87,600
Olympic	2,550	2,550
Ramsey	4,850	4,825
Sasakwa	1,700	1,725
Sholem-Alechem	2,875	2,850
Seminole district:		
Bowlegs	7,650	7,650
Carr City	2,425	2,475
Dora	2,375	2,400
Earlsboro	4,650	4,625
South Earlsboro	600	600
East Earlsboro	2,250	2,275
Little River	6,850	6,825
East Little River	725	725
Maud	700	725
Mission	1,275	1,250
Seminole	7,525	7,550
East Seminole	1,175	1,160
Searight	2,325	2,350
Total Seminole	40,525	40,610
St. Louis-Pearson	34,150	34,300
Tatums	1,950	1,950
Tonkawa-Garber-Thomas	4,050	4,075
Wewoka	1,625	1,625
Yale-Jennings	3,550	3,575
Other pools	96,925	96,265
Total Oklahoma	431,350	418,475

Seminole County

Campbell's No. 1 Sudie, SW NW SE Section 28-9-6, Seminole district, Seminole County, had sand at 2,556 ft., total depth 2,666 ft., plugged back to 2,526 ft., and pumped 54 bbl. of 32-gravity oil in 24 hours.

Amerada Petroleum Corp.'s No. 2 Newell, NE SE NW Section 3-10-5, North Earlsboro area, found Wilcox sand at 4,625-32 ft., total depth, and pumped 289 bbl. of 31.2-gravity oil in 24 hours.

Grimes' No. 2 Wooten, NW SE NE Section 3-5-5, had dug cellar and pits. W. B. Osborn's No. 1 well, NW NW NE Section 10-5-5, was a location. Traugh's No. 1 Scroggins, NW NE SW Section 34-7-6, was drilling below 810 ft.

Culver & Burton's No. 1 Swan, SE SE SW Section 3-5-5, had Hunton lime at 2,465 ft., was bottomed at 2,736 ft., swabbed and flowed an estimated 300 bbl. of oil in 24 hours and was being put on the pump.

Okfuskee County

Burke-Greis Oil Co.'s No. 1 Butler, SE SE NE Sec-

tion 19-10-10, an old Okfuskee County well, was deepened from 3,259 ft. to 3,702 ft., plugged back to 3,260 ft., and produced 2,000,000 cu. ft. of gas, with 250 lb. rock pressure.

Snyder's No. 13 Wind, NW SW NE Section 35-11-9, was a location.

Lincoln County

Wilcox Oil & Gas Co.'s No. 8 School Land S, NW SW SE Section 16-14-6, Sac and Fox pool, Lincoln County, set 7-in. pipe on top of Prue sand at 2,998 ft., total depth 3,100 ft., was shot and flowed 75 bbl. of oil daily.

Tiger Mountain Oil Co.'s No. 1 Groves, NE SE NW Section 5-14-3, Hoyt area, had a slight showing of gas but was dry and abandoned in Bartlesville sand at 1,442-60 ft., total depth.

McClain County

Two producers in the Byers pool, McClain County, were near completion. Patsy Oil Co.'s No. 1 Richardson, SE SW SE Section 9-5-3e, topped Viola lime at 3,510 ft., total depth 3,652 ft., set 7-in. pipe at 3,503 ft., flowed 292 bbl. of oil in 4 hours and was shut in for pipe-line connections. Simpson-Roodhouse Drilling Co.'s No. 1 James, SW SE SE Section 9-5-3, had Viola lime at 3,500 ft., set 7½-in. casing there, was bottomed at 3,650 ft., flowed 200 bbl. of oil in 2 hours and was shut in for connections.

Simpson-Roodhouse Drilling Co.'s No. 2 James, NW SE SE Section 9-5-3e, was building rig.

Osage-Pawnee Counties

W. M. McKnab's No. 1 Osage, NW NE SW Section 15-29-8, Osage County wildcat, was dry and abandoned at total depth of 2,600 ft. Detailed information was not divulged.

L. B. Jackson's No. 1-A Lamb, SE SW SW SE Section 24-20-9, Pawnee County, was completed for 7 bbl. of oil daily at total depth of 1,248 ft.

In Noble County Fain Drilling Co.'s No. 1 Guthrie, C N½ NE SW Section 31-21-2w, North Lucien pool, was a rig.

In Garfield County Champlin Refining Co.'s No. 1 Gibson, SE NE SE Section 25-23-4w, North Garber area, was completed for 4,000,000 cu. ft. of gas daily in lime at 5,086-5,145 ft., total depth.

Carter County

Magnolia Petroleum Co.'s No. 2 Gillespie, NE SW NW Section 33-1s-3w, Sholem-Alechem pool, Carter County, was bottomed at 4,073 ft., plugged back to 3,700 ft., was shot at 3,680-99 ft., and pumped 14 bbl. of oil daily.

J. S. Batson's No. 1 Williams, SW SW NE Section 20-4s-2w, set 7-in. pipe at 2,050 ft., had sand at 2,099-2,135 ft., total depth, perforated casing at 1,817-30 ft. and 1,538-85 ft., and pumped 39 bbl. of oil in 24 hours. It opens a productive spot between the Healdton and Hewitt fields.

Magnolia Petroleum Co.'s No. 9 Hardin, SE NW SW Section 19-1s-3w, had Springer formation at 3,706-27 ft., total depth, perforated casing, swabbed 25 bbl. of oil in 24 hours, and was being put on the pump.

In Cleveland County W. A. Delaney's No. 1 Fortman, NW SW SW Section 12-7-2w, wildcat in the Noble area, topped Wilcox sand at 7,255 ft. and was dry and abandoned at 7,756 ft., total depth.

In Coal County Barry's No. 1-A Smeltzer, NE SW NE Section 35-1n-8, wildcat south of the Clarita area, had Wapanucka formation at 1,821 ft., total depth 1,954 ft., was acidized, was estimated good for 12 bbl. of 49-gravity oil, with 2 bbl. of water, in 24 hours, and was shut down.

In Hughes County Miller and others' No. 1 Cahill, C E½ NE SW Section 2-6-8, wildcat south of Holdenville, spudded.

Southwestern Oklahoma

Magnolia Petroleum Co.'s No. 11 Green, NW SE NW Section 13-1s-4w, Stephens County sector of the Sholem-Alechem pool, was bottomed at 4,094 ft., perforated casing and had gas gaging 2,500,000 cu. ft., but gas was exhausted and it was dry and abandoned.

In Grady County T. H. McCasland's No. 1-A Costello, SE SE SE Section 21-3n-5w, Knox field, was bottomed at 2,430 ft., with sands at 2,105-15 ft., 2,135-48 ft., and 2,344-45 ft., set 8-in. casing at 2,389 ft., swabbed 115 bbl. of oil in 24 hours and was completed, flowing 70 bbl. of oil daily through tubing.

In Jackson County Gulf Oil Corp.'s No. 1 Lizzie, SE SE NW Section 4-1n-20w, was completed for 1,000,000 cu. ft. of gas daily at 2,558 ft.

In Comanche County Emmet McKee's No. 6 Truitt, NW NE SW SE Section 26-2n-11w, was completed at 230 ft., total depth, pumping 1 bbl. of oil daily. E. P. Evans' No. 3 Maloney, NE SE SE Section 23-2n-11w, was dry and abandoned at 150 ft., total depth.

In Tillman County Indian Territory Illuminating Oil Co.'s No. 1 Zeller, SE SE SW Section 36-2s-19w, Frederick district, topped Canyon lime at 3,125 ft., based Pennsylvanian at 4,700 ft., found Arbuckle lime at 5,054 ft., total depth 5,111 ft., and flowed 680 bbl. of 32-gravity oil in 19½ hours. Operators were preparing to test again.

Kerbow's No. 2 Walls, SE SW NW Section 11-1n-20w, Jackson County, was bottomed at 1,350 ft., and running 7-in. pipe. Gulf Oil Corp.'s No. 2 Enos, NE NE NE Section 16-1n-20w, was rigging up rotary tools.

Eastern Fields

(Continued from Page 86)

WEST VIRGINIA

Two producers were completed in West Virginia during the week. In Ritchie County the Square Oil Co. completed No. 5 Merle Carpenter in Grant district in Squaw sand at 2,024 ft. and it is good for 30 bbl. a day, initially.

In Wood County Mellinger Oil & Gas Co. completed a second test on the J. W. Marshall farm in Union district at 1,674 ft., Maxton sand, and it is a 1-bbl. pumper.

Gas Wells

In Boone County Cambridge Gas Co. completed No. 5 Charles H. Price in Scott district, at 3,583 ft. It gaged 413,000 cu. ft. a day.

In Gilmer County Hope Natural Gas Co. deepened No. 2 Nora V. Roberts, in Center district, into the slate below the Injun sand at 2,019 ft., and it is good for 500,000 cu. ft. a day. In this district McCall Drilling Co. completed No. 8 F. H. Stout at 3,355 ft., the slate below the Berea sand, and it is a gas well gaging 25,000 cu. ft. a day.

In Lincoln County Garrett Gas Co. completed a gasser on the Jones V. Alford farm in Duval district at 3,650 ft. It gaged, after shot, 106,000 cu. ft. a day from the Berea sand and 45,000 cu. ft. a day from the Brown shale.

In Ritchie County Moon Gas Co. completed a second test on the McMullen heirs farm in Clay district in Injun sand at 1,910 ft., and it is a gas well gaging 97,000 cu. ft. a day.

Oriskany Gas Field

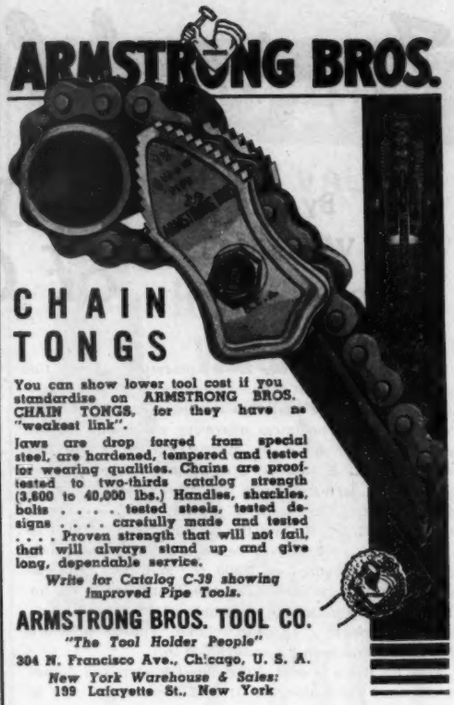
In Poca district, Kanawha County, Mullins Gas Co., on the W. E. Fisher farm, drilled to 5,186 ft., with the Corniferous lime topped at 5,053 ft. and a final gage of 2,497,000 cu. ft. a day from the Oriskany sand. In this district Alpha Gas Co. completed the second test on the J. W. Legg farm at 5,016 ft., with Corniferous lime topped at 5,016 ft. and a final gage from the Oriskany, after shot, of 3,022,000 cu. ft. a day.

In Elk district the Linden Drilling Co.'s test on the S. D. Robinson farm, got the Big lime at 1,708 ft. and gaged 1,051,600 cu. ft. a day.

Four new locations were made in Poca district: West Virginia Gas Corp. on the Elizabeth J. Thaxton and others farm, elevation 921.1 ft.; Columbian Carbon Co., on the V. E. King and others farm, elevation 855.8 ft.; United Carbon Co. on the Rosie Scott and others farm, elevation 824 ft., and on the W. C. Woodall and others farm.

In this district Columbian Carbon Co. was deepening the W. S. Jones test, starting at 3,535 ft. with a gage from the shale of 315,000 cu. ft. a day, and now drilling at 4,145 ft. United Fuel Gas Co. is down 1,699 ft. in No. 4863 Mary E. Carney, and 125 ft. in No. 4864 W. J. Glass and others. United Carbon Co. is drilling at 4,001 ft. in No. 815 W. J. Bumgardner, and at 1,792 ft. in No. 816 Louisa E. Long, with the Big lime topped at 1,704 ft. Columbian Carbon Co. is drilling at 5,215 ft. in the B. H. Richards test; at 5,113 ft. in the Walter Payne test; at 1,939 ft. on the Leonard C. Hanna land in Elk district, and cementing at 1,816 ft. in the Ida B. Mairs and others test.

ARMSTRONG BROS.



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Jaws are drop forged from special steel, are hardened, tempered and tested for wearing qualities. Chains are proof-tested to two-thirds catalog strength (3,800 to 40,000 lbs.) Handles, shackles, bolts . . . . . tested steels, tested designs . . . . carefully made and tested . . . . Proven strength that will not fail, that will always stand up and give long, dependable service.

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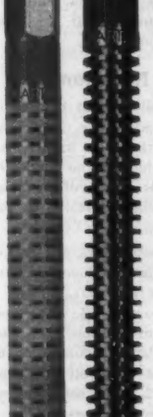

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Texas and Louisiana Gulf

By
NEIL WILLIAMS

Paying Production on Flank of Old Anse La Butte Dome

HOUSTON, Tex., Feb. 12.—Exploration around the flanks of known salt-dome structures in coastal Louisiana, continued to highlight development in the Gulf Coast district. The latest discovery was made on the Anse La Butte dome, St. Martin Parish, where last week, Glassell & Glassell opened the deepest production on the structure with the completion of No. 1 M. P. Breaux. This well, in Section 117-9s-5e, topped rock salt at 5,392 ft., and the formation was drilled to a total depth of 5,685 ft. Seven and five-eighths-inch casing was cemented at 5,500 ft., and the well was completed through perforated casing at 4,630-50 ft., for an initial production of 339 bbl. of 38.9-gravity oil, flowing through a 12/64-in. choke. Tubing pressure was 700 lb. and casing pressure 660 lb.

Anse La Butte is one of the oldest known salt domes in the Gulf Coast district. It is a piercement type of dome, discovered in 1902. All production heretofore has been from the cap rock and Pliocene sands, ranging in depths from 800 to 2,500 ft., extending over approximately 45 acres. At the end of 1939 the field had produced 968,629 bbl., and the daily average production from 9 wells was 71 bbls.

Superior Oil Co.'s No. 1 Schwing completed the previous week to open the first deep production for the Bayou Blue dome, Iberville Parish, flowed at the rate of 336 bbl. of 31.6-gravity oil per day through an 11/64-in. choke. Tubing pressure was 600 lb. and casing pressure 775 lb. Sands showing oil were recorded by an electrical survey at 1,630-50 ft.; 4,080-90 ft., and 5,003-62 ft. Seven-inch casing was cemented at 5,202 ft., and the well was completed through perforations at 5,003-17 ft., and 5,025-30 ft. Practically all acreage around the well is controlled by the Superior company, which is moving the rotary to No. 2 Schwing, 900 ft. due west of the discovery well in Section 74-9s-10e.

Added Reserves From New Sands

During the past 2 years, several million barrels of additional reserves have been added to the district by the opening of new sands around these old known salt structures. Several wells are drilling on the flanks of old nonproducing domes, and this phase of development promises to be one of the most outstanding features in this area during the year.

In the Paradis field, St. Charles Parish, Texas Co. was attempting to complete its third producer as 7-in. casing was cemented on bottom at 10,490 ft., in No. 3 L. L. & E. Paradis. Hard sand, showing oil, was cored at 10,188-10,256 ft. The well is in Section 8-14s-20e, about 1,700 ft. southeast of No. 2 Paradis, completed in December of last year as the first crude-oil producer on the structure. Approximately 2 miles east of production, Jolley Petroleum Co. staked location for No. 1 Matthews and Olivera in Lot 7, north of the Paradis townsite.

Gulf Oil Corp.'s No. 1 Rathborne, a south offset to the discovery well of the Barataria field, Jefferson Parish, flowed 668 bbl. per day through a ¼-in. choke. This well ranks as a better producer than the discovery well. Sand, showing oil, topped at 8,200 ft. was cored to a total depth of 8,210 ft. Locations for five wells have been made in the field and drilling is scheduled to be started on two of the tests at an early date.

In the West Lake Verret field, St. Mary Parish, Shell Oil Co., Inc., is preparing to test No. 4 Jeanerette. The hole is bottomed at 10,698 ft., and 7⅝-in. casing was cemented at 10,683 ft. Several sands showing oil and gas have been cored, and the well is practically assured of making a producer.

In Terrebonne Parish Barnsdall Oil Co. is bottomed at 10,950 ft., and 8⅝-in. casing was cemented at 10,505 ft. An electrical survey is reported to have recorded no showings, and the casing was cemented as protection.

On the Bay Brussell prospect, La Fourche Parish, Tide Water Associated Oil Co.'s No. 1 Delta Farms, Inc., perforated casing at 8,917-22 ft., and on a 30-minute drill-stem test, developed 2,800 lb. working pressure and 4 joints of distillate. The perforations have been squeezed preparatory to retesting.

In Beauregard Parish Atlantic Refining Co.'s No. 1 Lutcher Moore Lumber Co., a Tertiary Wilcox test in Section 13-5s-12w, topped the Hockleyensis at 6,025 ft.; Moody Branch at 6,730-50 ft., and is drilling ahead in shale below 6,820 ft.

Texas Gulf Coast

Along the Texas coast attention was centered on the East Hankamer area, Liberty County, where Titanic Oil Co. and others' No. 1 Boyt made its appearance as a probable pool opener when the well attempted to blow out at a depth of 8,834 ft. The drill stem, which was being pulled at the time the well started to blow, is stuck at 8,794 ft. An electrical survey which was run to the total depth of 8,350 ft. is reported to have shown no sands. The well is in the H.&T.C. Survey No. 9, east of the Hankamer field. On the strength of the showing, Marrs McLean is reported to have leased considerable acreage from E. W. Boyt and is obligated to drill two wells.

In Jefferson County Titanic Oil Co. extended production in the north extension area of the South China field with the completion of No. 1-B Guiterman through perforated casing at 7,488-7,518 ft. for an initial production of 7 bbl. per hour, flowing through a 9/64-in. choke. Tubing pressure was 500 lb. and casing pressure 625 lb. The well is about 1,300 ft. west of production in the C. T. Taylor Survey.

Strake Petroleum Co. is reported to have acquired a farmout lease from Magnolia Petroleum Co. in the North Cheek area, Jefferson County, and to have made locations for two wells, No. 1 J. N. Phelan in the Sam Stivers League, and No. 1 Pipkin in Section 15, H.T.&B. Survey. Of the seven wells drilled in the area, three were producers and the balance dry holes. Production of the wells was short-lived and no wells have been drilled in the area in several months.

Humble Oil & Refining Co. staked another outpost to the active Anchor field, Brazoria County, on the Heim and Holland lease, northwest of the field in the S. Marsh Survey. Approximately 2,000 ft. southwest of production, the company's No. 1 Galznik and Taylor is coring in sandy shale below 10,041 ft. An electrical survey showed four sands at intervals from 9,322 to 9,820 ft. East of the discovery well, Glenn McCarthy's No. 1 Galznik is drilling shale below 9,200 ft. Round Marginulina was topped at 7,919 ft.; Flat Marginulina at 8,102 ft.; Marginulina No. 7 at 8,254 ft., and the Frio was reported topped at 8,838 ft. The same operator continues to test No. 1 Salmon and Momma, west of production. Casing was perforated at 10,495-99 ft., and the well flowed 6 bbl. of fluid per hour, 50 per cent each of distillate and salt water.

Salt water made its appearance in Fred Browning's No. 1 Socha, completed the previous week as a distillate producer to extend production about 2,300 ft. southwest. During a 24-hour gage the well flowed 75 bbl. of fluid of which 85 per cent was distillate and 15 per cent salt water. The gage was made through a 12/64-in. bottom-hole choke and ¼-in. choke on top. Casing pressure was 1,900 lb. Northwest of the discovery, Humble Oil & Refining Co.'s No. 1 Miller is drilling in shale below 8,300 ft. Sand with a gas odor was logged in cores at 8,161-81 ft.

Northeast of the Cedar Point field, Chambers County, George Anderson is reported to have cemented casing, preparatory to testing No. 1 Lawrence. The hole is bottomed at 7,215 ft. Sidewall cores at 7,134 ft. showed sand and lignite, with an oil odor. Location is in the W. B. Smith Survey.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Hastings field: Stanolind Oil & Gas Co.'s No. 3-B Resoft, 6,190 ft., dry and abandoned. West Columbia field: Texas Co.'s No. 35 Abrams, sand 5,231-39 ft., 289 bbl., ¼-in. choke.

Fort Bend County

Thompson field: J. H. Blaffer's No. 6 Davis, sand 5,382-5,425 ft., 441 bbl., ¼-in. choke. Quintana Petroleum Corp.'s No. 3-B Wolters, perforated casing 4,310-16 ft., 292 bbl., ¼-in. choke.

Galveston County

Dickinson field: Humble Oil & Refining Co.'s No. 2 Kreisel, 9,040 ft., 142 bbl., ¼-in. choke.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 30-C Humble-West, sand 5,893-5,909 ft., 577 bbl., ¼-in. choke. Fairbanks field: Amerada-Stanolind Oil & Gas Co.'s No. 13 White, sand 6,814-45 ft., 105 bbl., ⅛-in. choke. Friendswood field: Humble Oil & Refining Co.'s No. 39 Beamer, sand 6,025-60 ft., 476 bbl., ¼-in. choke. Humble Oil & Refining Co.'s No. 15 Keisling-Dixon, sand 6,015-40 ft., 512 bbl., ¼-in. choke. Pierce Junction field: Rio Bravo Oil Co.'s No. 36-A Settegast, perforated casing 3,650-68 ft., 232 bbl., ¼-in. choke. Satsuma field: H. E. Williams' No. 1 Wright Land Co., 6,851 ft., dry and abandoned.

Jackson County

West Ranch field: Magnolia Petroleum Co.'s No. 42 West Ranch, perforated casing 5,543-50 ft., 251 bbl., ¼-in. choke.

Jefferson County

Lovells Lake field: Humble Oil & Refining Co.'s No. 5-A Steinhagen perforated casing 7,723-24 ft., 159 bbl., ⅛-in. choke.

Liberty County

Hardin field: Humble Oil & Refining Co.'s No. 14-A Partlow, sand 7,658-63 ft., 292 bbl., ¼-in. choke. Pan American Production Co.'s No. 1 Smith and Richardson, sand 7,637-43 ft., 208 bbl., 3/16-in. choke. Esperson field: General Crude Oil Co.'s No. 7-B Esperson, perforated casing 7,496-7,508 ft., 371 bbl., ¼-in. choke.

Matagorda County

Van Vleck field: Skelly Oil Co.'s No. 6 Moore, perforated casing 8,493-95½ ft., 216 bbl.

East Texas Fields

(Continued from Page 87)

Gregg County—Kilgore Area

Sinclair Prairie Oil Co.'s No. 60-B A. A. King, 3,460-88 ft., 60 bbl. M. M. Travis' No. 2 Evans-Elder, 3,542-52 ft., 76 bbl.

Rusk County—Joiner Area

Placid Oil Co.'s No. 13-B S. Hale, 3,592-3,688 ft., 6½ bbl.

Smith County—Joiner Area

Alex McCutchins' No. 12-A A. S. Jarvis, 3,740-41 ft., 15 bbl.

Upshur County—Longview Area

S. J. Felsenthal's No. 5 W. F. Glenn, 3,647-48 ft., 30 bbl. B. F. Phillips' No. 1 J. McBride, 3,630-40 ft., 10 bbl.

West Texas Fields

(Continued from Page 91)

¼ mile east and completed the second well. Third producer in the field was drilled by Lone Star Gas Co. as a south offset to the discovery. Lone Star's test missed the discovery sand and was completed in a deeper lime, which had saturation at 4,107-17 ft. It made 267 bbl. of oil daily. The new test will be drilled to the deeper pay if the Eastland Lake sand fails to yield commercial production.

Two new wildcat locations, and shows of oil at another wildcat, held the attention in Jones County. Location has been made and road is being built to the Humble Oil & Refining Co.'s No. 1 Ed Clift, in the Shinnery area, in the western part of the county. The location is about midway between the Chittenden field and the Noodle Creek field and is in the north 453 acres of the east third of the Ambrose Crain Survey 214. Location was also made between Anson and the Avoca pool for C. W. Byron's No. 1 Dr. L. B. Gray, 460 ft. from the north and east lines of SE NW Section 25, Deaf and Dumb Survey. An attempt will be made to secure Palo Pinto-lime production 4 miles southwest of Avoca and at the Erin Petroleum Co.'s No. 1 Jackson, Section 4, O.A.L. Survey. The test found saturation in the Palo Pinto lime at 3,404 ft. and cemented casing for a test. Extent of the oil showing was not reported.

A ⅝-mile south outpost has been staked to Shackelford County's Ivy pool by Owens-Snebold, and Danciger Oil & Refineries, Inc., on the O. E. Beck lands. SE¼ Section 163, 1,235 ft. from the east line and 330 ft. from the north line of the section.

Two new wildcats in Callahan County were staked during the week. H. W. Lee will drill No. 1 H. W. Ross, 2,420 ft. from the west line and 1,540 ft. from the south line of Section 98, B.B.B.&C. Survey. In the northwestern part of the county J. C. Hunter and H. L. Graham have staked No. 1 R. B. Leggett, Section 7, Block 8, S.P. Survey.

A new wildcat in Shackelford County is Andrew Urban, Jr.'s No. 1 T. T. Brooks, 150 ft. from the north and west lines of the northeast 40 acres of a 106-acre tract in Section 90, University lands.

WEST CENTRAL TEXAS COMPLETIONS
(24-hour gages)

Brown County

McDonald & Campbell's No. 4 Hill, M. Mudgett Survey 63, dry and abandoned at total depth of 1,333 ft.

Callahan County

Lanning's No. 1 Shrader, M. Cherry Survey 4, dry and abandoned at total depth of 1,757 ft.

Coleman County

Kynaston & Bozeman's No. 2 McCord, J. W. Meek Survey, dry and abandoned at total depth of 2,787 ft.

Eastland County

Holden's No. 1 Nichols, S. A. Hines Survey, Abstract 1549, dry and abandoned at total depth of 3,175 ft.

Jones County

Humble Oil & Refining Co.'s No. 5 Irwin, Section 48, Block 18, T.&P. Survey, 2,378-84 ft., 260 bbl.

Shackelford County

Hooker's No. 1 Jones, Section 72, L.A.L. Survey, dry and abandoned at total depth of 770 ft.

PANHANDLE COMPLETIONS
(24-hour gages)

Carson County

Magnolia Petroleum Co.'s No. 70 fee 244, 3,028-95 ft., 324 bbl.

Gray County

Shell Oil Co., Inc.'s No. 5 B. E. Finley, 3,026-98 ft., 313 bbl. Sinclair Prairie Oil Co.'s No. 4 Dave Pope, 3,170-3,261 ft., 168 bbl. Southwest Production Co.'s No. 3 A. J. McKay, 2,505-2,610 ft., 260,000,000 cu. ft. of gas.

Hutchinson County

Huber Petroleum Co.'s No. 1 Jack Johnson, 3,200-69 ft., 81 bbl. oil and 65 bbl. water. Skelly Oil Co.'s No. 9 Watkins, 2,716-2,806 ft., 413 bbl. Whittington's No. 1 Cal Merchant, 2,440-2,640 ft., 24,156,000 cu. ft. of gas.

Geological Base Map

A geological base map of the entire United States has just been completed by E. C. Jacobson, Tulsa cartographer, McBirney Building. Designed especially for oil men, it shows townships and ranges in all states that have such geographical divisions, as well as states, capitals, principal cities, counties and county seats.

The map measures 9 ft. 6 in. deep, by 15 ft. 6 in long, and is drawn to a scale of 1 in. to 16 miles. It was made from United States Geological Survey maps, reduced one-half. Mr. Jacobson drew the maps of the respective states separately, and joined them in the national map. He also has prepared national maps, with the same information, drawn to scales of 1 in. to 8 miles and 1 in. to 32 miles.

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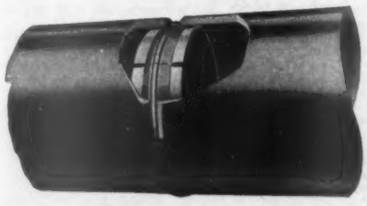

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Michigan Field Report

By O. C. PRESSPRICH

Reduced Initial Production in Recent Michigan Completions

SAGINAW, Mich., Feb. 12.—New oil production took another drop in Michigan last week while natural-gas development spurted upward. The mark of 20 completions included 13 oil wells which had a total initial potential of 2,440 bbl. a day; 3 gas wells with a combined flow of 27,190,000 cu. ft. a day, 4 dry holes.

The best oil well was Vanco Oil & Gas Co.'s No. 1 Henry Montry, NW NE NW Section 31-6s-6e, of Summerfield Township, Monroe County. Completed in the Trenton formation at 2,104 ft., its initial production was 500 bbl. a day, naturally.

Approach of more temperate months was reflected in an increase in new drilling and the issuance by the state Conservation Department of permits for 31 tests, the largest number in several weeks.

In an effort to encourage drilling, the commission announced it will conduct an auction of leases on state-owned lands on March 1. A total of 34,529 acres will be offered. Designated as wildcat land, the total included 12,054 acres in Clare County; 1,707 in Lake County; 1,145 in Manistique; 1,979 in Midland; 859 in Montmorency; 1,499 in Muskegon; 7,107 in Ogemaw; 431 in Osceola; 4,066 in Otsego, and 3,677 in Wexford.

The week also brought to an end to the week-old strike of rigbuilders in Central Michigan fields, who voted to return to their jobs at the suggestion of Detroit, Mich., and Hammond, Ind., officials of their C.I.O. union. It was reported two or three contractors had agreed to the riggers' demand for $2-a-day wage increases for foremen and workers, and that while the strike was terminated, negotiations will be carried on to make the increase general.

Two of the three new gas wells are in proved territory, the third being a semiwildcat. Don Rayburn completed No. 2-E Bergeron in Section 15 of Clayton Township, Arenac County, at a depth of 1,277 ft. in the Berea, for initial open flow of 12,500,000 cu. ft. a day. Belvidere Oil Co. extended the Edmore field one location northwest with the No. 1 Curtis in Section 21 of Home Township, Montcalm County, getting 8,500,000 cu. ft. a day from the Michigan stray formation with a test drilled to a depth of 1,295 ft. Two miles north and east of the Edmore field Edward C. Daily's No. 1 Church, in Montcalm's Richland Township, rated 6,200,000 cu. ft. Depth is 1,215 ft. One small gas well was completed in the immediate vicinity several weeks ago, while an oil test was a failure.

Two new wells in the Redding field of Clare County, completed by Pure Oil Co., had initial production considerably below average for the field and Sun Oil Co. was testing a wildcat which was reported to have a small showing of oil.

The southwestern area was in the doldrums as Overisel and Salem townships of Allegan County each recorded but one moderate producer and a Hopkins Township test was abandoned dry. There were only two new wells in Kent's Walker field, only one in Wyoming and in addition a wildcat effort in Caledonia Township was a failure at 2,301 ft. The Tallmadge extension of the Kent field, in Ottawa County, reported but two new wells, while a third completion was a dry hole. Location was abandoned for a contemplated exploratory test in Ottawa's Caledonia Township. The other dry hole was in Columbia Township of Van Buren County.

The Sun Oil test in Redding, Section 11, showed some oil in the Michigan stray formation, but was drilled without success to the Dundee and Monroe strata, bottoming at below 3,900 ft. It was plugged back. In the Wise field of Isabella County, at least a half-dozen tests were reported below 2,000 ft. and the Kent-Ottawa area had a dozen or more operations due for completion within a few days.

Of the new drilling permits, Walker Township was the location for eight, Tallmadge of five, Overisel of four. The rest was scattered—Holland Township of Ottawa; Bellevue of Eaton, Larkin and Porter of Midland, Franklin and Redding of Clare, Salem of Allegan, Cooper of Kalamazoo, Bangor and Columbia of Van Buren, Wise of Isabella, Rutland of Barry.

Following is the completion summary for the past week:

Allegan County

Hopkins Township (3n-12w)—Norton & MacRae's No. 1 Kenneth McKennon, NE NW NW Section 32, was abandoned as a dry hole, drilled to 1,660 ft.

Overisel Township (4n-14w)—Koelbel, Hagan & Hagan's No. 3 Harry Busscher, SW SW NE Section 27, completed at 1,473 ft., was rated as being good for 198 bbl. a day, after it was acid-treated.

Salem Township (4n-13w)—Socony-Vacuum Oil Co.'s No. 4-H, and L. Twining, NW SE SE Section 3, produced 105 bbl. a day, after an acid treatment, total depth 1,627 ft.

Arenac County

Clayton Township (20n-4e)—Don Rayburn's No. 2-E Bergeron, C SE NE Section 15, best of three new natural-gas completions, was rated at 12,500,000 cu. ft. a day. Completion depth was 1,277 ft.

Clare County

Redding Township (19n-6w)—Pure Oil Co. reported two completions, No. 1-D, J. S. Bicknell, C S½ SW NW Section 27, total depth 3,912 ft., producing naturally 94 bbl. a day and No. 2 George A. Petrowecheff, C S½ SW NW Section 34, good for 325 bbl. a day, naturally, from a depth of 3,928 ft.

Kent County

Caledonia Township (5n-10w)—Seaboard Oil Co. of Delaware's No. 1 Martin Zimmerman test, NE NE SW Section 17, was completed as a dry hole at 2,301 ft.

Walker Township (7n-12w)—Wolverine Natural Gas Corp.'s No. 2 George Burgess, SW NE NE Section 32, completed at 1,945 ft., did only 25 bbl. a day, after acid treatment. Gordon Oil Co. got slightly better result when No. 3 John Dykstra, NE SE NE Section 30, produced 85 bbl. a day, after acidizing, from a depth of 1,926 ft.

Wyoming Township (6n-12w)—Voorhees Drilling Co.'s No. 1 Grand Rapids Gravel Co., NW NW SE Section 3, acid-treated at 1,789 ft., produced 100 bbl. a day.

Midland County

Porter Township (13n-1w)—Pure Oil Co.'s No. 28 Mina B. Narmore, NW SE NW Section 15, was good for 190 bbl. a day after getting acid treatment. Completion depth was 3,386½ ft.

Monroe County

Dundee Township (6s-6e)—Fisher & McCall and others' No. 1-A Brunt, NE SW SW Section 30, total depth 2,130 ft., rated 200 bbl. a day, while Clark & Johnson's No. 1-E Osterhout, SE NW NW Section 30, was good naturally for 80 bbl. a day, being completed at a depth of 2,088½ ft.

Summerfield Township (6s-6e)—Vanco Oil & Gas Co.'s No. 1 Henry Montry, NW NE NW Section 31, was rated at 500 bbl. a day, naturally, from 2,104 ft.

Montcalm County

Home Township (12n-6w)—Belvidere Oil Co. completed No. 1 Henry Curtis, NW SE NE Section 21, as a natural gas well producing 8,460,000 cu. ft. a day from a depth of 1,295 ft.

Richland Township (12n-5w)—Edward C. Daily's No. 1 Church, SW SW NW Section 14, was a natural-gas completion good from 6,230,000 cu. ft. a day, total depth 1,215 ft.

Ottawa County

Jamestown Township (5n-13w)—Allegan Pipe & Supply Co.'s No. 1 J. P. Flen, SE SE SW Section 35, location was abandoned.

Tallmadge Township (7n-13w)—George Kernodle's No. 3 J. Snip, SE NE NW Section 25, acid-treated on completion at a depth of 1,874 ft., was rated at 200 bbl. a day. Basin Oil Co. and others' No. 4 John Connell and others, SW SW SE Section 24, was completed at 1,909 ft., and produced initially at the rate of 300 bbl. a day, after acid treatment. C. C. Goff's No. 1-N Klute, SW NE NW Section 24, was abandoned dry at 1,941 ft.

Van Buren County

Columbia Township (1s-15w)—H. Brown Cannon, trustee's No. 1 Addison Smith, NW NW NE Section 1, was abandoned as a dry hole after being drilled to a depth of 1,302 ft.

Rocky Mountain Area

(Continued from Page 80)

Oil & Gas Co.'s No. 2 Rasmussen, NE SW SW Section 32-33n-5w, swabbed 204 bbl. the first 24 hours at 2,798 ft., total depth, from the Cut Bank sand at 2,763-90 ft. Main pay was at 2,780-90 ft. The Sunburst at 2,685-2,730 ft. had a show of oil at 2,725 ft.

One of the new locations is a wildcat in the North Cut Bank area to be drilled by Cobb & Pardee on a block of 2,100 acres they have acquired.

Cobb & Pardee's No. 1 Anderson, C NE NW Sec. 1-36n-6w. Loc.; (first report).
Santa Rita O. & G. Co.'s No. 4 Stahl, CSL NW SE Sec. 20-33n-5w. M.I.M.; (first report).
British American Oil Co.'s No. 12 Tribal, C SE NW Sec. 34-35n-6w. Drlg. 450 ft.
R. C. Tarrant's No. 5 State, NW NE SE Sec. 36-34-6w. Spdg. 100 ft.
Santa Rita O. & G. Co.'s No. 4 Lander, C SE SW Sec. 16-35n-6w. Drlg. 2,675 ft.; landed 8⅝-in. at 2,567 ft.; S.O.W. at 2,460-90 ft.
Helmac, Tr.'s No. 3 Govt., Lot 3, Sec. 32-33n-5w. R.O.G.
R. C. Jeffries' No. 1 Exchange Oil Co., C NW NW Sec. 34-35n-6w. Drlg. 2,800 ft.
Glacier Prod. Co.'s No. 6 State, CWL NW¼ Sec. 16-33n-5w. Drlg. 2,535 ft.
Glacier Prod. Co.'s No. 3 Scheuren, C SW SE Sec. 20-33n-5w. Drlg. 2,835 ft.
Glacier Prod. Co.'s No. 2 Lookhoff, C NW NE Sec. 33-33n-5w. Drlg. in sd. at 2,960 ft.; T. Cut Bnk. 2,955 ft.
A. B. Cobb's No. 1 Churi, C SW NW Sec. 30-37n-4w. Drlg. 510 ft.; Colo. 420 ft.; 10¾-in. at 460 ft.
Cobb-Reagan's No. 4 Jackson, SW SW SE Sec. 5-32n-6w. R.U.R.

Hill County

J. Gudgel's No. 1 Federal Ld. Bnk., C SE SW Sec. 19-33n-15e. Drlg. 1,180 ft.

Toole County

Mosby Oil Corp.'s No. 3 Pederson, SE NW SE Sec. 7-35n-2w. S.D. 80 ft.
Big West Oil Co.'s No. 16 Dahlquist, SW NW NE Sec. 28-35n-3w. T.D. 1,726 ft.; contact at 1,707 ft.; 3 S.O. at 1,711, 1,718, and 1,726 ft.; started flowing 50 B. O.P.D. at 1,726 ft.
Coolidge & Coolidge's No. 2 McCurdy, NE NW NW Sec. 11-35n-3w. T.D. 1,712 ft.; cmtd. 5-½-in. on bttm.
Casper T. Olen's No. 9 Engemoen, NW NE NW Sec. 14-35n-2w. S.D. 70 ft.
L. J. Yealy's No. 14 Shaw, NW SW NE Sec. 35-36n-2w. R.O.G.
Lemac Oil Co.'s No. 1, C NE NE Sec. 27-36n-2w. T.D. 1,870 ft.; fsg.

UTAH

Grand County

Reeder Corp.'s No. 1 State, NE NE NE Sec. 16-22s-19e. T.D. 700 ft.; U.R. 8¾-in. to bttm. for W.S.O.

SOUTH DAKOTA

Harding County

South Dakota State Roy. Co.'s No. 1 State, SW NW Sec. 35-18-1e. Drlg. 7,898 ft.

Butte County

Two Top O. & G. Co.'s No. 2, SE NE Sec. 30-10n-6e. T.D. 1,090 ft.; C.O.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Union Oil, No. 1 Russell, Santa Maria, Santa Barb.	20-10-34	4,595	completing
Union Oil, No. 2-4 O'Donnell, Santa Maria, Santa B.	29-10-34	4,995	cleaning out
Colo, F. E., No. 3 Paderewski, Santa Maria, Santa B.	29-10-34	5,615	no kick
Hamilton, W. C., No. 1 Hollister, Goleta, Santa B.	3- 4-29	1,185	sd. sh. drlg.
T. O. Oil, No. 5 Mdivani, Mesa, Santa Barbara	28- 4-27	1,840	sd. sh. drlg.
Oil Group, Inc., No. 1 Hyland, Summerland, S. Barb.	16- 4-26	1,315	rigging up
Coronet Oil, No. 4 Crown, Ojai, Ventura	17- 4-21	1,150	bailing
Ohio Oil, No. 1 Vail, Moor Park, Ventura	10- 2-19	1,160	sd. sh. drlg
Savage Oil, No. 8 Calumet, Shiells Canyon, Ventura	3- 3-19	4,016	O.S. drlg.
Continental Oil, No. 13 Grubb, San Miguelito, Vent.	24- 3-24	6,320	redrlg. 6,292
C. C. M. Oil, No. 8-A Hobson, Rincon, Ventura	15- 3-24	6,450	pump water
Tide Water A. O., No. 43 V.L.W., Vent. Ave., Vent.	23- 3-23	8,094	sd. sh. drlg.
Tide Water A. O., No. 45 V.L.W., Vent. Ave., Vent.	24- 3-23	6,271	sd. sh. drlg.
Tide Water A. O., No. 17 McGonigle, Vent. Ave., V.	23- 3-23	2,998	sd. sh. drlg.
Tide Water A. O., No. 120 Lloyd, Vent. Ave., Vent.	27- 3-23	9,190	flow 950 b.d.
Tide Water A. O., No. 122 Lloyd, Vent. Ave., Vent.	23- 3-23	8,351	sd. sh. drlg.
Tide Water A. O., No. 21 Hartman, Vent. Ave., Vent.	22- 3-23	9,190	hd. sh. drlg.
Shell Oil, No. 111 Taylor, Ventura Ave., Ventura	29- 3-23	7,360	flow 1,585 b.d
Shell Oil, No. 112 Taylor, Ventura Ave., Ventura	29- 3-23	6,390	sd. sh. drlg.
Shell Oil, No. 113 Taylor, Ventura Ave., Ventura	29- 3-23	945	sd. sh. drlg.
Shell Oil, No. 35 Edison, Ventura Ave., Ventura	21- 3-23	8,870	O.S. drlg.
Cal. Alliance Pet., No. 2 Hartman, Vent. Ave., Vent.	22- 3-23	7,190	sd. sh. drlg.
Lloyd Corp., No. 4 Dabney, Ventura Ave., Ventura	23- 3-23	10,135	swabbing
Beiridge Oil, No. 22-1 fee, North Beiridge, Kern	1-28-20	8,395	flow 365 b.d.
Beiridge Oil, No. 53-26 fee, North Beiridge, Kern	28-27-20	8,410	cleaning out
Texas Co., No. 2 Beer, Devils Den, Lost Hills, Kern	8-26-19	1,201	swab water
Texas Co., No. 1 Theta, Shale Hills, Kern	12-28-19	968	sd. sh. drlg.
Cal-Western Oil, No. 12 Coffee, Round Mtn., Kern	12-28-28	1,909	pump 220 b.d.
Kern Valley Drlg., No. 1 Kern, Round Mtn., Kern	4-29-29	2,660	sd. sh. drlg.
Davis Pet., No. 1 Kernco, Kern Front, Kern	13-28-27	1,800	gr. sd. drlg.
Dick & Dore Oil, No. 7 Kern, Kern River, Kern	34-28-28	625	pump 5 b.d.
Dick & Dore Oil, No. 16 Kern, Kern River, Kern	34-28-28	607	pump 5 b.d.
Dick & Dore Oil, No. 16 Kern, Kern River, Kern	34-28-28	210	sd. sh. drlg.
Dick & Dore Oil, No. 21 Kern, Kern River, Kern	34-28-28	192	sd. sh. drlg.
Helm & Smith, No. 18 Kern, Kern River, Kern	34-28-28	450	sd. sh. drlg.
El Tejon O. & R., No. 2 Douglas, Edison, Kern	32-29-29	3,850	sd. sh. drlg.
Goodrum & Vincent, No. 3 S.P., Edison, Kern	31-29-30	414	sd. sh. drlg.
Whiston, H. L., No. 1 Wasem, Edison, Kern	32-29-29	3,979	dry; abd.
Allied Pet., No. 35 Allied, Mountain View, Kern	19-30-29	2,988	sd. sh. drlg.
Universal Consd. Oil, No. 2 Cattani, Arvin, Kern	15-31-29	6,149	O.S. drlg.
Western Gulf Oil, No. 45-B, KCL, Fruitvale, Kern	22-29-27	3,860	sd. sh. drlg.
Union Oil, No. 4-23 Bowerbank, Goose Lake, Kern	25-29-24	12,144	P.B. 10,870
Standard Oil, No. 2 Bolz, Delano gas field, Kern	33-24-23	2,485	gas zone
Continental Oil, No. 5-8-A, KCL, Wasco, Kern	8-27-24	12,360	sd. sh. drlg.
Continental Oil, No. 1 Meyer, Wasco, Kern	7-27-24	10,141	sd. sh. drlg.
Continental Oil, No. 1 Community, Shafter, Kern	12-28-24	7,700	sd. sh. drlg.
Union Oil, No. 21-34, KCL, Rio Bravo, Kern	34-28-25	11,190	cleaning out
Union Oil, No. 56-27, KCL, Rio Bravo, Kern	27-28-25	2,874	sd. sh. drlg.
Superior Oil, No. 1 Rudnick, Rio Bravo, Kern	28-28-25	8,962	sd. sh. drlg.
Superior Oil, No. 1 Roe, Rio Bravo, Kern	27-28-25	9,996	sd. sh. drlg.
Standard Oil, No. 11-23, KCL, Greeley, Kern	18-29-26	8,785	sd. sh. drlg.
Standard Oil, No. 12-7, KCL, Greeley, Kern	7-29-26	9,871	sd. sh. drlg.
Standard Oil, No. 12-8, KCL, Greeley, Kern	7-29-26	6,942	redrlg. 6,240
General Pet., No. 1 Farrand, Greeley, Kern	12-29-25	11,196	sd. sh. drlg.
Superior Oil, No. 1 Scofield, Greeley, Kern	12-29-25	10,374	sd. sh. drlg.
Shell Oil, No. 83-29-A, KCL, Ten Section, Kern	29-30-26	8,050	sd. sh. drlg.
Shell Oil, No. 8-21-B, KCL, Ten Section, Kern	21-30-26	7,490	sd. sh. drlg.
Tide Water-Continental, No. 26-7-E, KCL, Strand, K.	7-30-26	6,550	sd. sh. drlg.
Shell-Ohio, No. 64-12-A, KCL, Strand, Kern	12-30-25	8,734	P.B. 8,570
Ohio Oil, No. 17-E, KCL, Canal, Kern	13-30-25	8,324	completing
Shell Oil, No. 21-13-A, KCL, Canal, Kern	13-30-25	8,640	flow 50 b.d.
Shell Oil, No. 85-15-A, KCL, Canal, Kern	15-30-25	1,038	sd. sh. drlg.
Richfield Oil, No. 74-32-A, KCL, Tupman, Kern	32-30-25	2,996	sd. sh. drlg.
Richfield Oil, No. 72-33-B, KCL, Tupman, Kern	33-30-25	8,830	sd. sh. drlg.
Richfield Oil, No. 58-29-A, KCL, Tupman, Kern	29-30-25	8,900	flow 280 b.d.
Richfield Oil, No. 76-29-A, KCL, Tupman, Kern	29-30-25	8,670	sd. sh. drlg.
Richfield Oil, No. 12-3-C, KCL, Cole's Levee, Kern	3-31-25	8,170	sd. sh. drlg.
Shell Oil, No. 81-17-B, KCL, Cole's Levee, Kern	17-31-25	9,240	hd. sh. drlg.
Standard Oil, No. 20-2, KCL, Cole's Levee, Kern	9-31-25	9,324	tested wet
Standard Oil, No. 20-3, KCL, Cole's Levee, Kern	9-31-25	9,934	salt water
Ohio Oil, No. 6-F, KCL, Cole's Levee, Kern	11-31-25	10,000	completing
Ohio Oil, No. 7-F, KCL, Cole's Levee, Kern	3-31-25	9,105	hd. sh. drlg.
Tide Water A. O., No. 65, KCL, Cole's Levee, Kern	13-31-25	10,480	hd. sh. drlg.
Tide Water A. O., No. 72, KCL, Cole's Levee, Kern	14-31-25	6,440	sd. sh. drlg.
Union Oil, No. 54-11, KCL, Cole's Levee, Kern	11-31-25	9,825	completing
Richfield Oil, No. 1 Slough, South Ten Section, Kern	6-31-26	9,850	sd. sh. drlg.
Standard Oil, No. 6-33-D fee, Midway-Sunset, Kern	33-32-23	3,150	sd. sh. drlg.
Merritt-Annex Oil, No. 1-34, M.A., Midw.-Sun., Kern	34-32-24	2,625	rig to pump
General Pet., No. 1 B.V.A., Midway-Sunset, Kern	1-32-24	10,998	sd. sh. drlg.
Signal Oil & Gas, No. 7 Kendon, Midway-Sun., Kern	35-32-23	1,096	sd. sh. drlg.
Shell Oil, No. 45-9 B.V.A., Midway-Sunset, Kern	9-32-25	10,105	sd. sh. drlg.
National Oil, No. 35 Sunset, Midway-Sunset, Kern	35-32-23	1,235	O.S. drlg.
Texas Co., No. 37 Midway, Midway-Sunset, Kern	32-32-24	3,209	rig to pump
Ohio Oil, No. 43-3-B, KCL, Paloma, Kern	3-32-26	9,970	sd. sh. drlg.
Western Gulf-Texas, No. 74-3-A, KCL, Paloma, Kern	3-32-26	10,450	O.S. drlg.
Shell Oil, No. 52-2-13-A, KCL, San Emidio, Kern	13-11-22	13,415	hd. sh. drlg.
Cal.-Stan Oil, No. 1 Weber, McKittrick, Kern	34-30-22	1,220	wet; abd.
Burrhus, V. E., No. 1 Haberkern, Elkhorn, Kern	21-32-22	1,980	sd. sh. drlg.
Jergins Trust, No. 1 Cheney, Panoche Creek, Fresno	29-14-13	6,260	sd. sh. drlg.
Texas Co., No. 1 S. P., Turk anticline, Fresno	23-17-15	7,131	sd. sh. drlg.
Standard Oil, No. 51-19-B fee, N.E. Coalinga, Fresno	19-19-16	8,209	O.S. drlg.
Standard Oil, No. 62-19-B fee, N.E. Coalinga, Fresno	19-19-16	8,050	hd. sd. drlg.
Standard Oil, No. 71-19-B fee, N.E. Coalinga, Fresno	19-19-16	6,160	sd. sh. drlg.
Union Oil, No. 68-18 Cook, N.E. Coalinga, Fresno	18-19-16	5,664	sd. sh. drlg.
Union Oil, No. 88-18 Cook, N.E. Coalinga, Fresno	18-19-16	7,930	sd. sh. drlg.
Amerada Pet., No. 22-20 Ewing, N.E. Coal., Fresno	20-19-16	8,182	flow 3,060 b.d
Bandini Pet., No. 46-18-B, N.E. Coalinga, Fresno	18-19-16	9,000	hd. sd. drlg.
Superior Oil, No. 3 Husong, N.E. Coalinga, Fresno	18-19-16	7,270	sd. sh. drlg.
Bandini Pet., No. 51-30-B, Central College, Fresno	30-19-16	8,138	O.S. drlg.
Lytle, R. S., agent, No. 5-7-F, S.E. Coalinga, Fresno	7-20-16	6,670	O.S. drlg.
Lytle, R. S., agent, No. 24-7-F, S.E. Coalinga, Fresno	7-20-16	6,691	sd. sh. drlg.
Lytle, R. S., agent, No. 24-18-F, S.E. Coal., Fresno	18-20-16	266	sd. sh. drlg.
Lytle, R. S., agent, No. 37-18-F, S.E. Coal., Fresno	18-20-16	7,824	flow 2,300 b.d.
Univ. Cons. Oil, No. 61-24-C, S.E. Coalinga, Fresno	24-20-15	4,995	sd. sh. drlg.
Texas Co., No. 2 Anderson, S.E. Coalinga, Fresno	6-20-16	5,683	sd. sh. drlg.
Standard Oil, No. 77-13-C fee, S.E. Coalinga	13-20-15	6,059	sd. sh. drlg.
Standard Oil, No. 42-19-F fee, S.E. Coalinga, Fresno	19-20-16	7,496	sd. sh. drlg.
Superior Oil, No. 4 Cagle, S.E. Coalinga, Fresno	6-20-16	7,255	sd. sh. drlg.
Texas Co., No. 1 Boston, Westhaven, Fresno	14-20-18	1,237	sd. sh. drlg.
Shell Oil, No. 1 Cohn, Tulare Lake, Kings	4-22-19	9,190	sd. sh. drlg.
Priest Valley Pet., No. 1 Greve, Priest Valley, Mont.	22-20-12	2,060	idle
Buttes Oilfields, No. 6 Buttes, Marysville, Sutter	1-15- 1	7,070	will P.B.
Texas Co., No. 1 Holmes, Eureka, Humboldt	22- 3- 1	4,398	sd. sh. drlg.
Richfield Oil, No. 2 Hill, Potrero, Solano	5- 4- 1	1,390	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S. T. R.	Depth	Status—
Union Oil, No. 13 Carson, Dominguez, Los Angeles	33- 3-13	7,784	cleaning out
Shell Oil, No. 100 Reyes, Dominguez, Los Angeles	33- 3-13	7,391	flow 58 b.d.
Havenstrite, R. E., No. 2 Larronde, Dominguez, L.A.	32- 3-13	2,181	sd. sh. drlg.
Morton & Elder, No. 2 Dominguez, Dominguez, L.A.	32- 3-13	7,426	sd. sh. drlg.
Pongratz Pet., No. 1 Grant, Dominguez, L. A.	29- 3-13	3,997	sd. sh. drlg.
Barnsdall Oil, No. 1 Santa Fe, Rosecrans, L. A.	20- 3-13	8,792	flow 65 b.d.
Averill, George, No. 3 South, Rosecrans, L. A.	20- 3-13	8,215	rig to pump
Apex Pet., No. 1 Hatfield, Rosecrans, Los Angeles	20- 3-13	8,510	sd. sh. drlg.
South. Calif. Pet., No. 1 Rowena, Rosecrans, L. A.	19- 3-13	7,465	flow 280 b.d.
Union Oil, No. 37 Rosecrans, Rosecrans, L. A.	19- 3-13	7,700	recmtd. 7,397
Union Oil, No. 38 Rosecrans, Rosecrans, L .A.	19- 3-13	2,992	sd. sh. drlg.
Royalty Service, No. 1 Cement, Rosecrans, L. A.	19- 3-13	7,520	O.S. drlg.
El Rey Oil, No. 1 Westmore, Athens, Los Angeles	2- 3-14	4,440	sd. sh. drlg.
Dominguez Estates, No. 1 fee, Torrance, L. A.	2- 4-14	4,770	sd. sh. drlg.
Casa Grande Oil, No. 1 Lopez, San Fernando, L. A.	1- 2-15	2,320	cleaning out
Tide Water A. O., No. 3 Porter, Aliso Canyon, L. A.	27- 3-16	5,450	flow 2,467 b.d.
Tide Water A. O., No. 12 Porter, Aliso Canyon, L.A.	27- 3-16	7,696	redrlg. 7,500
Continental Oil, No. 1 Howell, Aliso Canyon, L. A.	2- 2-16	1,862	sd. sh. drlg.
Tamas Oil, No. 1 Perkins, Newhall, Los Angeles	14- 3-16	3,900	cleaning out
Consolidated Pet., No. 4 Needham, Newhall, L. A.	13- 3-16	4,300	cmtd. 4,000

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg., or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.S.T., drill-stem test.
D.P., drill pipe.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe-line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracked.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel-line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas, and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting on orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig
Wtr., water.

Barnsdall Oil, No. 1 R.S.F., Newhall, Los Angeles	27-	4-17	7,012	flow 850 b.d.
Barnsdall Oil, No. 2 R.S.F., Newhall, Los Angeles	27-	4-17	6,712	will deepen
Barnsdall Oil, No. 9 R.S.F., Newhall, Los Angeles	27-	4-17	1,994	sd. sh. drlg.
General Pet., No. 8 Blinn, Wilmington, Los Angeles	35-	4-13	3,395	completing
Ace Oil, No. 1 Harbor, Wilmington, Los Angeles	35-	4-13	3,499	sd. sh. drlg.
Continental Corp., No. 2 L.A.C.F.C., Wilmington, L.A.	2-	5-13	2,595	sd. sh. drlg.
Hancock Oil, No. 15-A Harbor, Wilmington, L. A.	35-	4-13	1,988	sd. sh. drlg.
Hancock Oil, No. 26-B Harbor, Wilmington, L. A.	35-	4-13	1,848	sd. sh. drlg.
Long Beach Dev., No. 4-Z Harbor, Wilmington, L.A.	2-	5-13	2,872	flow 430 b.d.
Long Beach Dev., No. 5-Z Harbor, Wilmington, L.A.	2-	5-13	4,057	flow 400 b.d.
Union Pacific R.R., No. 127, Wilmington, L. A.	3-	5-13	3,920	sd. sh. drlg.
Union Pacific R.R., No. 128, Wilmington, L. A.	3-	5-13	3,505	sd. sh. drlg.
Union Pacific R.R., No. 129, Wilmington, L. A.	4-	5-13	3,567	completing
Union Pacific R.R., No. 130, Wilmington, L. A.	3-	5-13	3,472	completing
Union Pacific R.R., No. 7-C, Wilmington, L. A.	33-	4-13	5,160	O.S, drlg.
West. Annex Oil, No. 1 Shaffner, Wilmington, L. A.	35-	4-13	2,540	sd. sh. drlg.
Wilton Oil, No. 55-10-F, Wilmington, Los Angeles	32-	4-13	2,998	sd. sh. drlg.
West Whittier Oil, No. 1 Pellissier, Whittier, L. A.	17-	2-11	4,430	ditch show.
Kern Oil, No. 34 Monterey, Montebello, Los Angeles	2-	2-12	2,366	sd. sh. drlg.
Kern Oil, No. 38 Monterey, Montebello, Los Angeles	2-	2-12	4,580	sd. sh. drlg.
Union Oil, No. 9 Howard & Smith, Montebello, L.A.	11-	2-12	6,990	sd. sh. drlg.
Bush Oil, No. 2 Mihifred, Montebello, Los Angeles	3-	2-12	2,969	sd. sh. drlg.
Caminol Co., No. 4-20 Cowan, Montebello, L. A.	3-	2-12	6,992	sd. sh. drlg.
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11-	2-12	7,657	fish D.P.
Columbia Oil, No. 1 Scheinik, Montebello, L. A.	3-	2-12	7,448	O.S. drlg.
Franru Oil, No. 1 Condaffer, Montebello, L. A.	11-	2-12	5,364	sd. sh. drlg.
Getty-Pac. West., No. 1 Pfister, Montebello, L. A.	10-	2-12	3,998	sd. sh. drlg.
Herley-Kelly, Inc., No. 3 Burke, Montebello, L. A.	2-	2-12	4,485	cleaning out
Junior Oil, No. 1 Kay, Montebello, Los Angeles	10-	2-12	7,610	flow 460 b.d.
Larson Drlg., No. 3 Van Deusen, Montebello, L. A.	11-	2-12	7,540	flow 175 b.d.
Mabee Co., No. 6 Mulholland, Montebello, L. A.	2-	2-12	4,596	sd. sh. drlg.
Mabee Co., No. 39 Monterey, Montebello, L. A.	2-	2-12	2,584	sd. sh. drlg.
Shoreline Drlg., No. 1 Mont., Montebello, L. A.	11-	2-12	7,580	O.S. drlg.
Stag Oil, No. 1 Brown, Montebello, Los Angeles	10-	2-12	7,561	O.S. drlg.
Star Pet., No. 1 Allen, Montebello, Los Angeles	11-	2-12	7,580	O.S. drlg.
Texas Co., No. 2 Wilcox, Montebello, Los Angeles	3-	2-12	7,740	redrlg. 6,191
Westmount Oil, No. 1 West, Montebello, L. A.	11-	2-12	7,515	O.S. drlg.
Winlock Oil, No. 1 Win, Montebello, Los Angeles	11-	2-12	7,590	fish swab
Allied Pet., No. 34 Signal, Long Beach, L. A.	30-	4-12	7,910	sd. sh. drlg.
Dunlap Oil, No. 14 Signal, Long Beach, L. A.	24-	4-13	3,770	P.B. 3,686
Caminol Co., No. 3-19 Dominguez, Long Beach, L. A.	11-	4-13	7,674	rig compressor
Werland, C. C., No. 1 Oates, Castaic, Los Angeles	17-	5-16	1,350	sd. sh. drlg.
Great Northern Oil, No. 1 Oak, Richfield, Orange	28-	3- 9	3,225	cleaning out
Morgan, George, No. 1 Fricke, Yorba Linda, L. A.	21-	3- 9	2,131	sd. sh. drlg.
Standard Oil, No. 2-13 Coyote, E. Coyote, Orange	22-	3-10	4,680	flow 416 b.d.
Southwest Expl., No. 25 State, Hunt. Beach, Orange	10-	6-11	2,882	sd. sh. drlg.
H. R. O. Oil, No. 1 Huntington, Hunt. Beach, Orange	11-	6-11	3,340	sd. sh. drlg.
Orr, Sara, No. 1 Montgomery, Hunt. Beach, Orange	36-	5-11	4,494	pump 100 b.d.
Pac. American Oil, No. 6 Book, Hunt. Beach, Orange	36-	5-11	3,873	cmtd. 3,873
Tide Water A. O., No. 7 Bryant, Seal Beach, Orange	11-	5-12	4,343	pump 495 b.d.
Asphalt Pet., No. 1 Bryant, Seal Beach, Orange	11-	5-12	5,090	sd. sh. drlg.
Thompson, M. N., No. 1 Smith, Costa Mesa, Orange	9-	6-10	3,771	sd. sh. drlg.

OKLAHOMA

Week Ended February 10

NORTHERN OKLAHOMA

Caddo County

Sinclair Prairie Oil Co.'s No. 1 Groman, SW NW NW Sec. 1-16-13w. Wlx. 9,179 ft.; set 7-in. csg. 9,167 ft.; drlg. 9,285 ft.

Comanche County

Mid Night Oil's No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; dpnd. to 998 ft.; S.D.

Creek County

Bryan Pet. Co.'s No. 1 Ah-Say, NE NW NE Sec. 34-14-7. Drlg. 520 ft.

Waite Drlg. Co.'s No. 1 Garrett, NE NE NE Sec. 25-14-10. 1st Wlx. 3,160-76 ft.; S.S.O.&G. 3,118 ft.; T.D. 3,188 ft.; D. &A.

Dewey County

Magnolia Pet. Co.'s No. 1 Fiekes, C SW SW Sec. 31-18-14w. Drlg. 6,780 ft.

Garfield County

Fain Drlg.'s No. 1 Schnakenburg, NE SE SW Sec. 31-21-4w. Sat. 5,805 ft.; T.D. 5,860 ft.; lost circ.

Grant County

Continental Oil Co.'s No. 1 Krichmar, SE SE NE Sec. 28-28-5w. Spd. 100 ft.; M. I. rot. to straighten hole.

Hughes County

Hall & Jordan's No. 1-A Barker, SE SE SW Sec. 3-8-9. Drlg. 1,315 ft.

Tom Nix's No. 1-A Warren, SE SE SE Sec. 4-6-8. S.S.O. 903-08 ft.; T.D. 930 ft.; drlg. plug; may recmt.; S.D.

Walker & Johnson's No. 1 Rogers, NE NE NE Sec. 24-7-9. S.S.O. 565-85 ft.; W.O.C. 615 ft.

Kay County

Malarnee Oil Co.'s No. 1 Harris, C SW NE Sec. 14-25-1. S.S.O. 3,583 ft.; T.D. 3,787 ft.; C.O. and tstg.

Kingfisher County

Phillips Pet. Co.'s No. 1 Drape, C NW SE Sec. 30-18-5w. R.U.

Kiowa County

Frank Dillard et al's No. 1 Hobbs, SE SE NW Sec. 35-6-17w. Set 6⅝-in. 525 ft.; T.D. 690 ft.

Forrest Linsay's No. 1 Boake, SW SW SW Sec. 29-7-16w. Drlg. 1,142 ft.

Lincoln County

Harper & Turner's No. 1 Mann, NW NW SE Sec. 23-14-5. R.U.

R. M. Purcell et al's No. 1 Wolcott, NW NW NW Sec. 2-13-4e. R.O.G.

Geo. Travis et al's No. 1 Teter, NW NW SW Sec. 24-17-2. Drlg. 2,952 ft.

Youngblood et al's No. 1 Wright, NE NE SE Sec. 32-16-6. H.F.O. and mud; F. 20 B.O.P.D.; drlg. ahd. to Wlx.

Logan County

Helmerich & Payne's No. 1 McMahon, SW SW SE Sec. 31-17-1. Drlg. 2,355 ft.

McIntosh County

Phillips' No. 1 Blankenship, C SW NW Sec. 37-10-13. Drlg. 2,575 ft.

Muskogee County

R. Garrett's No. 1 Escoe, SW SW SE Sec. 16-13-17. Drlg. 1,025 ft.

Payne County

Gardner Pet. Co.'s No. 1 Wetzel, NE SW SE Sec. 2-18-1e. Drlg. 4,535 ft.

H. N. Greis, Deep Rock Oil Corp., and Helmerich & Payne's No. 1 Kramer, NW NW SE Sec. 24-17-1e. Rig.

Pontotoc County

Crescent Oil Co.'s No. 2 Thompson, NE NW SW Sec. 29-3-4. T.D. 460 ft.; S.D.

Starr O. & G. Co.'s No. 1 Bowlby, SW SW NW Sec. 29-5-4. Drlg. 2,183 ft.

Pottawatomie County

Alma Oil Co.'s No. 1 Lyday, SE NE SW Sec. 30-6-5. T.D. 3,979 ft.; rng. Schmb.

Seminole County

Stanolind O. & G. Co.'s No. 1 Aldridge, NW NE SE Sec. 32-9-8. Drlg. 2,440 ft.

SOUTHERN OKLAHOMA

Atoka County

Brookshire et al's No. 1 Jones, C SW NW Sec. 29-3s-12. Drlg. 550 ft.

Carter County

W. F. Turner's No. 1 Smith, NE SW SE Sec. 16-3s-1w. S.D. 3,640 ft.

Choctaw County

Clyde Ross et al's No. 1 Hardy, SE SE NW Sec. 21-7s-15. T.D. 1,832 ft.; S.D.

Jackson County

English Drlg. Co.'s No. 1-A Aetna Life, SE SE NE Sec. 26-3n-20w. Drlg. Arb. 1,615 ft.

Jones & Robinson's No. 1 Neal, SW SW SW Sec. 8-1s-20w. Rig.

Jefferson County

Fred Land et al's No. 1 Barrett, NE SE SE Sec. 14-6s-6w. Sd. 1,852 ft., S.O.; D P. stk. at 1,100 ft.; T.D. 1,890 ft.; S.D

Marshall County

Johnson et al's No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Vla. 2,627 ft.; S.S.O.. T.D. 4,455 ft. in sd.; S.O.; S.D.

May Oil Corp.'s No. 1 Sacrea, SW NE SW Sec. 17-5-5. S.D. 326 ft.

Pure Oil's No. 1 Little, W½ NE SE Sec. 28-5s-7e. Drlg. 3,415 ft.

Stephens County

Edwin Bristow et al's No. 1-A Damion, SE NW SW Sec. 25-2s-6w. S.D. 785 ft.

KANSAS

Week Ended February 10 (Descriptions are East unless marked otherwise)

Barton County

Phillips' No. 1 Wondra, CWL SW NE Sec. 15-17-12w. Lans. 3,049 ft.; 700 ft. O.I.H., 10 hrs.; congl. 3,292 ft.; Arb. 3,316 ft.; S.O.&W. 3,318-20 ft.; H.F.W. 3,325 ft., T.D.; P.B. to Lans.

Butler County

Allison & Talbott's No. 1 Zink, SE SE NE Sec. 32-29-5. Drlg. 2,350 ft.

Atlantic and Sinclair's No. 1 Smith, SE SE NW Sec. 33-33-4. Drlg. 285 ft.

Natl. Ref. Co. No. 1 Lankford, SE SE NE Sec. 23-27-5. U.R. 2,718 ft.

Natl. Ref. Co.'s No. 1 Smith, NE NW SE Sec. 9-28-5. U.R. 1,965 ft.

Cowley County

Atlantic and Sinclair's No. 1 Smith, SE SE NW Sec. 33-33-4. Drlg. 978 ft.; cor.

Crown Pet. Co. et al's No. 1 Dunn, NW NW SE Sec. 19-34-6. Cmtd. 10-in. 108 ft.; S.D. 200 ft.

Garden's No. 1 Rahn, SW SW NW Sec. 13-34-5. Bart. 2,936 ft.; T.D. 3,425 ft., in Arb.; F. 110 B.O. in 1 hr.; bomb pot. 1,035 B.O.; comp.

Markey & Talbot's No. 1 Anderson, C N½ NE NW Sec. 21-30-3. Drlg. 1,200 ft.

Markey & Mission's No. 1-A Hunt, SW SW NE Sec. 16-34-5. C.O. 1,025 ft.

Ellsworth County

Cities Service Oil Co.'s No. 1 Padlena S.O. 2,836 ft.; T.D. 3,113 ft.; P. 595 B. W. and no oil in 21 hrs.; P. 25 B.O. and 589 B.W. in 22 hrs.; P.B. 2,838 ft.; acd.; no test.

Lauck & Moncrief's No. 1 Ehler, CWL SW NW Sec. 35-16-10w. W.O.C. 155 ft.

Phillips Pet. Co.'s No. 1 Sturn, SE SE NW Sec. 36-17-10w. Drlg. 2,760 ft.

Gove County

Cities Service's No. 1 Victory, CWL NW¼ Sec. 36-13-30w. Drlg. 2,850 ft.

Greenwood County

A. A. Hinze et al's No. 1 Hester, NW SW NE Sec. 1-22-12. S.D. 510 ft.

Marylyn Oil's No. 1 Burke, NE NE SW Sec. 27-24-11. Drlg. 300 ft.

Rex & Morris' No. 1-A Wright, C N½ Lot 16, Sec. 30-28-8. S.D. 1,075 ft.

C. L. Sheedy et al's No. 1 Hook, NW SW NW Sec. 4-22-10. S.D. 1,200 ft.

Jefferson County

McLaughlin Sons, Inc.'s No. 1 McLaughlin, SW NE NW Sec. 4-10-20. T.D. 1,915 ft.; whpstk. 1,858 ft.; S.D. 1,915 ft.

Johnson County

Thurow et al's No. 1 Green, SW NE SW Sec. 25-14-22e. Burg. 1,038 ft.; S.S.O.; cmt. 7-in. 1,040 ft. and S.D.

McPherson County

Aladdin Pet. Co.'s No. 1 Bitikofer, CNL NE NW Sec. 1-20-1w. Cellar.

Marion County

Harrington & Lorieaux's No. 1 Belton SE SE NE Sec. 30-17-4. Fsg. 640 ft.

Polhamus et al's No. 1 Noone, NW NW SE Sec. 18-18-3. C.O. at 2,785 ft.

H. H. Royer's No. 1 Kroch, NE NE NW Sec. 28-18-4. Drlg. 225 ft.

Troxwell et al's No. 1 Bezdek, NE SW SW Sec. 32-17-4. Miss. 2,396 ft.; 7-in 2,401 ft.; T.D. 2,501 ft.; H.F.W.; D.&A.

Reno County

Shell's No. 1 Frazee, NE SE NE Sec. 33-25-8w. Drlg. 2,541 ft.

Rice County

Mid-Plains Oil Co.'s No. 1 Newkirk, CSL SW SW Sec. 14-18-7w. Drlg. 3,170 ft.

Pryor & Lockhart's No. 1 Southern, C N½ NE NE Sec. 14-19-10w. Drlg. 1,450 ft.

Rooks County

Seaney & Ciampitt's No. 1 Morrison, CS L SW NE Sec. 32-10-17w. Loc.

Russell County

I. W. Murfin et al's No. 1 St. Aubyan, CSL SW SE Sec. 1-15-15w. U.R. 2,460 ft.

Webb & Wakefield's No. 1 Schmidtberger, CNL NE SW Sec. 17-13-15w. Drlg 2,493 ft.

Sedgwick County

Sunray Oil Co.'s No. 1-A McMillan, CWL NW NW Sec. 14-29-2w. Fsg. 613 ft.

Stafford County

Shell Oil's No. 1 Smith, SE SE NW Sec. 9-21-11w. S.S.O. in core at 3,410-15 ft.; R.U.S.T. 3,415 ft.; T.D. 3,462 ft.; P.B. 3,388 ft.; flw. 82 B.O. in 6 hrs. by hds. P. 126 B.O. and 8 B.W. in 8 hrs.; pot. 378 bbl.

MISSOURI

Butler County

Coastal Pet.'s No. 1 Pierson, SW NE NW Sec. 27-22-6. Drlg. 500 ft.

Holt County

Brin & Nathan's No. 1 Decker, C NW NW Sec. 1-61-38w. T.D. 1,030 ft.; S.D. for csg.

Knox County

W. H. Oberithier et al's No. 1 Campbell, C NE Sec. 18-61-12w. Hntn. 575 ft.; C.O. 759 ft.

Platte County

Roach-Vincent et al's No. 1 Dillingham, NE SW Sec. 16-53-34w. S.D. 1,025 ft.; to resume when weather permits.

Schuyler County

T. E. Baldwin's No. 1-A Johnson, NW NE NE Sec. 21-65-15w. T.D. 1,069 ft.; P.B. 1,040 ft.; cmtd. 7-in. 1,030 ft.; W. O.C.

IOWA

Fremont County

Oscar Gruber's No. 1 fee, C SW SE Sec. 8-67n-40w. Base Ft. Scott 750 ft.; T.D. 1,065 ft.; pulled 6-in. and rmg. to 965 ft.; S.D. at 965 ft.

Union County

Phillips Pet. Co.'s No. 1 Creston, C SE NE Sec. 31-71-30w. Set 10-in. 1,740 ft. in Hntn.; C.O.

NEBRASKA

Richardson County

Pawnee Royalty's No. 1 Boice, CSL N½ NE NE Sec. 18-1-16e. Hntn. 2,276 ft.; dpnd. to 2,292 ft.; P.&F. 78 B.O. and 403 B.W.; S.I.; stor.

Pawnee Royalty's No. 1 Myers, C NW NW Sec. 24-1-1e. Vla. 3,183-86 ft.; cmtd. 7-in. 3,183 ft.; W.O.C.

ARKANSAS

Columbia County

Ark. Fuel Oil Co.'s No. 2-B King, C SE NW Sec. 21-17-20. O.W.W.O.; went dead; drld. out cmt. and cd. 7,684-88 ft.; rec. 1½ ft. por. perm. ool. L.; D. S.T. 7,675-88 ft.; ⅝-in. ck. top and ¼-in. ck. bttm.; open 1 hr., tstd. 6,500 ft. S.W.; P.B. 7,640 ft.; reperf. csg. 7,630-61 ft.; would not flow; attempted acd.; would not take acd.; racking with gas.

Hunt Oil Co.'s No. 2 McWilliams, NE NE Sec. 16-18-19. 9⅝-in. csg. 2,109 ft.; drlg. rd. sdy. sh. 7,385 ft.

J. K. Mahoney's No. 2 E. Riley, C NE NE Sec. 14-18-19. Drlg. sdy. sh. 6,131 ft.

Oliphant Oil Co.'s No. 1 Rowe, 460 ft. N, 660 ft. E, SW cor. Sec. 16-17-20. Set 9⅝-in. csg. 2,170 ft.; W.O.C.

Placid Oil Co.'s No. 2 J. W. Boothe unit, C NW SW Sec. 20-17-19. Set 9⅝-in. csg. 2,100 ft.; W.O.C.

Southwood Oil Co.'s No. 1 Couch, 550 ft. S, 660 ft. W, NE cor. SE SE Sec. 23-17-20. T.D. 7,644 ft.; rng. csg.

Southwood's No. 1 Poindexter, 100 ft. N, C SE SE Sec. 23-17-20. Cg. 7,575 ft.

Standard Oil Co. of La.'s No. 1 A. W. Gunnels et al, C SW NW Sec. 20-17-19. R.U.

Standard Oil Co. of La.'s No. 1-B Longino, C NW SE Sec. 19-17-19. Cg. 7,565 ft.

Tide Water-Seaboard Oil Co.'s No. 1 W. Mack, C SW NE Sec. 16-18-19. Drlg. rd.&gr. sh. 5,650 ft.

G. H. Vaughn's No. 1-D J. Jones, 495 ft. S, 660 ft. W, NE cor. NE SE Sec. 21-17-20. Set 9⅝-in. csg. 2,200 ft.; W. O.C. 2,210 ft.

Craighead County

Tennark, Inc., No. 1 R. M. Martin, SE cor. NE NE Sec. 35-14-3e. S.D. 4,910 ft.

Howard County

Wm. James, tr.'s No. 3 I. M. Rooke, 50 ft. SW of No. 1, Sec. 2-8s-27w. Drlg. hd. rk. 523 ft.

Lafayette County

East Texas Ref. Co. et al's No. 1-C C. Warren et al, C NE SE NW Sec. 24-16-24. Tstd. S.W. 3,504-24 ft.; P.B. 2,275 ft.; drld. to 2,345 ft.; 5½-in. csg. 2,323 ft.; T.D. 2,345 ft.; arng. swb.

Lonoke County

Lunnon Howell & Ford's No. 1 City of Cabot, C NE Lot 1, Blk. 6, Sec. 18-4n-9w. S.D. 872 ft.

J. F. Russell's No. 1 J. T. Gunter, 440 ft. N, 577 ft. W, SE cor. Sec. 17-5n-10w. S.D.; T.D. 2,114 ft.

Nevada County

Berry Asphalt Co.'s No. 5 Fincher, 220 ft. NW cor. NE SE Sec. 10-14-20. Set 10-in. csg. 20 ft.; T. sd. 1,245 ft.; set 7-in. csg. 1,245 ft.; T.D. 1,246 ft.; C.O.

Berry Asphalt Co.'s No. 9 Groves Ld. & Tmbr. Co., 330 ft. S and W, C Sec. 10-14-20. Drlg. 125 ft.

Texas Canadian Oil Corp.'s No. 1 J. M. Stocks, 300 ft. S, 380 ft. W, NE cor. SW SE Sec. 9-15-22. Drlg. rd.&gr. sh. 4,030 ft.

Miller—Rodessa County

Dr. J. S. Rushing's No. 1 D. Wood, 1,681 ft. W, 461 ft. S, NE cor. Sec. 18-20-27. Set 9⅝-in. csg. 2,206 ft.; W.O.C. 2,210 ft.

Union County—Schuler

Lion Oil Ref. Co.'s No. 7-B Morgan, 330 ft. NW cor. W½ SE Sec. 18-18-17. T. Jones sd. 7,546 ft.; T.D. 7,730 ft.; set 7-in. csg. 7,730 ft.; reperf. 5,571-75 ft., 5,594-96 ft., and 5,831-33 ft.; swbd. 23 bbl. S.W. and oil in 9 hrs.; W.O.S.R.

Phillips Pet. Co.'s No. 5 Brian, 330 ft. SE cor. NW SE Sec. 13-18-18. Set 9⅝-in. csg. 2,249 ft.; drlg. rd. sdy. sh. 5,702 ft.

Union County—Other

Berg & Laney's No. 1 Cutrer, 150 ft. N, 660 ft. W, SE cor. NW SW Sec. 21-17-14. Set 10-in. csg. 114 ft.; drlg. sdy. sh. 1,930 ft.

Bob Branch's No. 1 J. M. Davis, 130 ft. SW cor. SE NW Sec. 28-16-14. T.D. 2,760 ft.; lost part of core bbl.; set whpstk. 2,750 ft.; drlg. 3,050 ft.

Delta Drlg. Co.'s No. 1 C. T. Grace, C SE SE Sec. 31-12-14. Set 10¾-in. csg 815 ft.; T. Sur. L. 6,701 ft.; T. por. 6,708 ft.; S.W. 6,712 ft.; tstd. mud, S.W.&S.O. 6,701-27 ft.; T.D. 6,819 ft set 7-in. csg. 3,767 ft.; perf. 3,465-68 ft.; D.S.T. 3,450-68 ft.; ¼-in. top and ½-in. bttm. ck.; flwg. 1,500,000 cu. ft. gas and 4 B.O.P.H., 30% S.W.

Kinard, Curtis et al's No. 1 J. A. Kelly, 330 ft. SW cor. SE SW Sec. 9-17-14. R.U.

Ouachita Union Oil Corp.'s No. 1 Ramsey est., 330 ft. NE cor., SE NW Sec. 26-17-14. **Set 10-in. csg. 107 ft.; set whpstk.** 3,042 ft.; S.D., rd. sh. 3,490 ft.

Hunt Oil Co.'s No. 1 Grant Lbr. Co., 660 ft. N, 1,880 ft. E, SW cor. Sec. 12-21-10. Drlg. sh.&L. 4,165 ft.

Hunt Oil Co.'s No. 1 Jordan, 660 ft. N, 560 ft. W, SE cor. NE Sec. 31-21-10. Drlg. 5,635 ft.

Hunt Oil Co.'s No. 5 Stewart, 660 ft. N, 560 ft. E, SW cor. NW¼ Sec. 29-21-10. Set 13⅜-in. csg. 632 ft.; W.O.C.

Quad Oil Co.'s No. 2 Gray, 730 ft. NW cor. SW¼ Sec. 26-21-10. Drlg. 5,178 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co.'s No. 1 David Meaux, Sec. 9-12s-3e. T.D. 11,359 ft.; T. gas sd. 11,318 ft.; D.S. stk.; P.B. and side-tracked; T.D. 11,545 ft.

Continental Oil Co.'s No. 1 DeMary, Sec. 17-12s-3e. T.D. 10,624 ft.; 6-in. csg. on bttm.; tstg.; perf. csg. 10,605-10 ft.; flwg.; no ga.

Continental Oil Co.'s No. 1 Franciol, Sec. 67-12s-3e. T.D. 7,909 ft.; 6-in. csg. 7,909 ft.

Continental Oil Co.'s No. 1 Motty, Sec. 18-12s-3e. T.D. 10,444 ft.; fsg.

Stanolind O. & G. Co.'s No. 1 LeBoeuf, Sec. 58-12s-3e. Drlg. sh. 7,786 ft.

Anse La Butte—St. Martin Parish

Glassell & Glassell's No. 1 Breauy, Sec. 117-9s-5e. T.D. 5,685 ft.; 7-in. csg. 5,500 ft.; perf. csg. 4,630-50 ft.; P.B. 4,654 ft.; I.P. 339 B.P.D.; 12/64-in. ck.; T.P. 700 lb.; C.P. 660 lb.; grav. 38.9.

Emer Line Oil Co.'s No. 1 Nickerson, Sec. 86-9s-5e. Drlg. sh. 2,220 ft.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 15 Columbia Ld. Co., Sec. 21-6s-13w. Loc.

Republic Prod. Co.'s No. 1 Hennigan, Sec. 15-6s-13w. Drlg. sh. 6,530 ft.

Republic Prod. Co.'s No. 4 Lutcher Moore, Sec. 16-6s-13w. T.D. 10,019 ft.; 5½-in. csg. 7,355 ft.; perf. csg. 7,288-92 ft.

Barataria—Jefferson Parish

California Oil Co.'s No. 1 Danciger-State, Sec. 2-16s-23e. Driving piling.

California Oil Co.'s No. 1 Zeringue-Community, Sec. 2-16s-23e. Loc.

Carter, Perrin & Brian's No. 1 Ruttley Wiseman, Sec. 2-16s-23e. R.U.

Geo. Conover's No. 1 Conover Community, Sec. 22-15s-23e. Loc.

Fohs Oil Co.'s No. 1 Conzelman, Sec. 22-15s-23e. Loc.

Gulf Oil Corp.'s No. 1 Rathborne Co., Sec. 2-16s-23e. Top O.S. 8,200 ft.; T.D. 8,210 ft.; 7-in. csg. 8,195 ft.; tstg.; I.P. 668 B.P.D.; ¼-in. ck.

Bateman Lake—St. Mary Parish

Texas Co.'s No. 3 State, Sec. 16s-12e. Drlg. sh.&L. 8,768 ft.

Texas Co.'s No. 3 Wax Bayou, Sec. 21 16s-12e. Drlg. sh. 11,036 ft.

Texas Co.'s No. 4 Wax Bayou, Sec. 21-16s-12e. Cg. 10,910 ft.

Baton Rouge—East Baton Rouge Parish

Guaranty Oil Co.'s No. 2 Morgan, Sec. 65-7s-1w. T.D. 6,530 ft.; 5½-in. csg. 6,450 ft.; swbd. S.W.; S.D.

Wm. Helis' No. 4-B Duplantier, Sec. 68-7s-1w. 10¾-in. csg. 2,049 ft.; T.D. 6,498 ft.; I.P. 253 B.P.D.; 11/64-in. ck.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Harry Hanbury's No. 1 Holston unit, 70 ft. from NE cor. SW NE Sec. 29-18-6. Drlg. sh.&L. 5,565 ft.

Bossier Parish

Gulf Ref. Co.'s No. 20 C. B. Hodges, 3,131 ft. N, 1,388 ft. W, SE cor. Sec. 24-16-12. T. Pett. L. 5,298 ft.; T. Travis Pk. 5,590 ft.; D.S.T. 8,261-93 ft.; tstd. 220 ft. mud; drlg. hd. sdy. sh. 8,458 ft.

Premier Dev. Co.'s No. 1 Mehaffey, 150 ft. S, 1,980 ft. W, NE cor. Sec. 27-19-11. Set 12½-in. csg. 155 ft.; W.O.C.

Union Prod. Co.'s No. 1-B Thigpen-Herold, 1,275 ft. S, 1,279 ft. E, NW cor. Sec. 19-17-11. Cg. 5,227 ft.

Caddo Parish

Hugh Carney's No. 1 Burton, 2,279 ft. S, 773 ft. W, NE cor. NW Sec. 1-20-16. Set 10-in. csg. 80 ft.; set 7-in. csg. 1,380 ft.; tstg. 1,490 ft.; acd. with 3,000 gal.

D. T. Cauble's No. 1 Darnell, Sec. 17-22-16. Set 10-in. csg. 80 ft.; T.D. 2,125 ft.; S.D.; rig repair.

Davidson & Brown's No. 1 Wells, Sec. 10-21-15. Set 10-in. csg. 60 ft.; drlg. 250 ft.

H. H. Dillard's No. 1 Dillard, 595 ft. W, 50 ft. S, NE cor. SW SE Sec. 1-20-16. Drlg. 950 ft.

T. B. Donnell's No. 3 Barrett et al, Sec. 11-20-16. Set 10-in. csg. 80 ft.; W.O.C.

Bobby Manziel's No. 1 City of Shreveport, 660 ft. NW cor. SW¼ Sec. 35-18-14. Drlg. 2,300 ft.

E. E. Marr's No. 1 Brown, Sec. 11-20-16. Set 10-in. csg. 100 ft.; set 7-in. csg. 1,414 ft.; T.D. 1,600 ft.; acd. with 6,000 gal.; W.O.S.R.

Lee Miller's No. 1 Crystal fee, Sec. 13-21-16. Set 5½-in. csg. 2,265 ft.; T.D. 2,288 ft.; W.O.S.R.

E. O. Mitchell's No. 1 fee, Sec. 12-20-16. Loc.

O'Brien Bros.' No. 1 Bradford et al, Sec. 24-21-15. Set 10-in. csg. 100 ft.; set 6-in. csg. 1,450 ft.; W.O.S.R.; T.D. 1,600 ft.

Joe S. Pace et al's No. 1 Stinson et al, Sec. 6-20-15. Set 10-in. csg. 80 ft.; W. O.C.

Roberts & Murphy's No. 1 Caddo O. & R. Co., Sec. 12-20-16. Set 7-in. csg. 1,340 ft.; W.O.C.

Stanolind O. & G. Co.'s No. 2 Alexander, 670 ft. E, 2,461 ft. S, NW cor. SE Sec. 21-21-15. 8-in. csg. 67 ft.; set 5½-in. csg. 1,567 ft.; arng. acd.

Stanolind O. & G. Co.'s No. 3 Noel, Sec. 13-21-15. Set 5½-in. csg. 1,461 ft.; swbd. dry, S.S.G.; arng. acd.; T.D. 1,663 ft.

Stanolind O. & G. Co.'s No. 2 Pitts, Sec. 10-21-15. Drlg. 85 ft.

Joe G. Strahan's No. 2 Hart, Sec. 29-21-16. Set 10-in. csg. 60 ft.; S.D. 1,800 ft.

L. L. Sugar's No. 1-B Muslow, Sec. 32-21-15. Set 6⅝-in. csg. 1,435 ft.; W.O.C.

Jack Terrell's No. 1 Welch, Sec. 3-20-16. Set 6-in. csg. 946 ft.

W. & W. Oil Co.'s No. 4 Ark. F. O. Co., Sec. 12-20-16. Set 10-in. csg. 100 ft.; drlg. 1,050 ft.

Sloan Wells' No. 1 Stiles, 3,734 ft. N, 1,706 ft. E, SW cor. Sec. 32-21-16. Set 10-in. csg. 340 ft.; S.D. 1,550 ft.

R. W. Williams' No. 1 Pearl Hobbs, Sec. 21-21-15. Drlg. 450 ft.

De Soto Parish

Dewey Jaun's No. 1 Frost Lbr. Ind., 6,600 ft. SE cor. SW Sec. 14-10n-15w. 2,945-53 ft.; set 7-in. csg. 2,931 ft.; T.D. 2,949 ft.; W.O.C.

La Salle Parish

H. L. Hunt and Ark. Fuel Oil Co.'s No. 1 Goodpine Lbr. Co., C NW NW Sec. 18-10n-3e. Fsg. 3,030 ft.; blew out and bridged at 1,200 ft.; drld. bridge and twisted off 2,000 ft. D.S.; left wall hook in hole while fsg.; P.B. 900 ft. whpstk. 900 ft.; ran Schlmb. to 3,039 ft.; drlg. sdy. sh. 6,461 ft.

Sabine Parish

P. C. Alexander's No. 1 Tilly, 330 ft. SW cor. NE SE Sec. 30-8-12. R.U.

R. Chestnut's No. 1 Walden, 330 ft. SE cor. NE NE Sec. 27-10-13. Set 10-in. csg. 42 ft.; set 7-in. csg. 1,458 ft.; drlg. clk. 1,715 ft.

John Derryberry et al's No. 1 Manton, 330 ft. NE cor. NW SW Sec. 34-7-13. 6-in. csg. 2,450 ft.; T.D. 2,986 ft.; acd. 2,000 gal.; pmpd. dry; dpnd. to 3,009 ft.; S.D.; W.O.

Hunter Co.'s No. 3-B Sabine, C SE NW Sec. 17-7-13. Set 6-in. csg. 2,111 ft.; tstg. 2,114 ft.

N. B. Livingston's No. 1 Bowman Hicks, 660 ft. SE cor. SW Sec. 36-9-14. Set 10-in. csg. 110 ft.; D.S.T. 3,125-59 ft.; ¼-in. cks. T.&B.; 35 min.; rec. 150 ft. mud and S.G.; rng. 5½-in. csg. 3,508 ft., T.D.; tstd. gas 3,462-3,535 ft.; perf. between 3,134 ft. and 3,462 ft. and tstd. est. 1,000,000 cu. ft. gas, S.O. and S.W.; P.B. 3,200 ft.; tstg. upper perf. points.

Major Oil Co.'s No. 2 Sabine, 330 ft. SE cor. SE SW Sec. 5-7-13. R.U.

B. F. Phillips' No. 1 Blankenship, 330 ft. S, 202 ft. W, NE cor. SE NW Sec. 13-9-12. Reported S.G. 3,230 ft.; set 7-in. csg. 3,200 ft. (cor.); S.G. 3,216-25 ft.; T.D. 3,685 ft.; tstg.

Claude H. Smith's No. 1 Whitney Corp., 330 ft. N and E, C Sec. 24-10-14. Drlg. sh.&L. 2,670 ft.

J. E. Stack's No. 1 Weber, 330 ft. SE cor. SW NE Sec. 8-7-13. Set 10-in. csg. 42 ft.; abd.; will not drill.

J. H. Thames' No. 1 Long Bell, 330 ft. SW cor. NE SE Sec. 5-8-13. T.D. 1,708 ft.; set 7-in. csg. 1,680 ft.; did not tst. 1,708 ft.; S.D. 1,722 ft.; W.O.

Union Parish

Memphis Nat. Gas Co.'s No. 4 Lankford, Sec. 3-21-3. Set 6-in. csg. 2,145 ft.

Memphis Nat. Gas Co.'s No. 9 Lankford, Sec. 26-22-3. Set 6-in. csg. 2,150 ft.

We Hope O. & G. Co.'s No. 11 Frost Lbr. Ind., Sec. 14-22-3. Set 8-in. csg. 759 ft.; drlg. 1,800 ft.

H. L. Woods' No. 3 Union Power, Sec. 29-21-3. Set 8-in. csg. 760 ft.

Webster Parish

Hassie Hunt's No. 2 Coyle, C SW SE Sec. 22-21-10. No Hilwy. sd.; P.B.; set 5,918 ft.; T.D. 6,294 ft.; rocking with gas and tstg.

Hunt Oil Co.'s No. 1 Gains, 50 ft. NW C NW NE Sec. 30-21-9. Set 9⅝-in. csg. 5,615 ft.; no Hilwy. sd.; fsg. D.S. 7,769 ft.

40 BELOW ZERO

BR-R-R-R—Sure it's cold, but not too cold for the Abercrombie mud gauge which is unaffected by temperature extremes and, because the gauge operates in oil, the face will not frost.

The Abercrombie gauge is compact, easy to move, and its heavy forged steel sub has threaded connection for screwing directly on two-inch (2″) line pipe. The gauge window is made of unbreakable plexiglass which offers tremendous resistance to shock and pressure.

The gauge contains a self-dampening mechanism which requires no adjustments and gives uniform steady pressure reading over all ranges. The Abercrombie gauge is built on a new principle and employs no Bourdon tube. The entire mechanism works on ball bearings in oil and it will give a lifetime of accurate service.

FLUID-PISTON CLUTCH PUMPS
ABERCROMBIE PUMP CO.
GULF BLDG. HOUSTON TEX.

ABERCROMBIE PRESSURE GAUGE

Wm. Helis' No. 2-C Duplantier, Sec. 70-7s-1w. Drlg. sh. 2,630 ft.
Lisbon-Iberia Oil Co.'s No. 3-A College Town Community, Sec. 68-7s-1w. Drlg. sh. 5,412 ft. in sdtrkd. hole.

Bay St. Elaine—Terrebonne Parish

Texas Co.'s No. 3 L.L.&E., Sec. 18-22s-18e. Loc.

Bayou Blue—Iberville Parish

Superior Oil Co.'s No. 1 Schwing Lbr Co., Sec. 74-9s-10e. T. salt 6,670 ft.; T.D. 6,795 ft.; 7-in. csg. 5,202 ft.; perf. csg. 5,003-17 ft. and 5,025-30 ft.; I.P. 336 B.P.D.; 11/64-in. ck.

Bayou Choctaw—Iberville Parish

Standard Oil Co. of La.'s No. 2 Cypress, Sec. 28-8s-11e. Bldg. rd.
Standard Oil Co. of La.'s No. 12 Wilbert, Sec. 53-9s-11e. Ran 10¾-in. csg.; T.D. 5,452 ft.; sdtrkd.; T.D. 3,823 ft.; oil sd. 3,740-3,822 ft.; 7-in. csg. 3,828 ft.; perf. csg. 3,800-20 ft.; flwd. 16 bbl. fluid per hour; went dead.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co.'s No. 2-B Wilberts, Sec. 78-8s-8e. 10¾-in. csg. 2,854 ft.; drlg. sh. 5,501 ft.

Black Bayou—Cameron Parish

Shell Oil Co., Inc.'s No. 44 Watkins, Sec. 7-12s-12w. M.I.R.

Caillou Island—Terrebonne Parish

Texas Co.'s No. 62 State-Caillou Island, Sec. 17-23s-20e. 10¾-in. csg. 1,473 ft.; T.D. 5,955 ft.; 7-in. csg. 5,772 ft.; I.P. 356 B.P.D.; ⅞-in. ck.

Chacahoula—La Fourche Parish

Sun Oil Co.'s No. 1 Cypress, Sec. 75-15s-15e. 13⅜-in. csg. 1,842 ft.; T. salt 6,072 ft.; T.D. 6,088 ft.; P.B. 2,100 ft.; sdtrkd.; T.D. 6,553 ft.; fsg.; sdtrkd.; T.D. 5,544 ft.; P.B. to sdtrk.; T.D. 7,271 ft.; sdtrkd.; T.D. 7,426 ft.
Sun Oil Co.'s No. 6 Dibert, Stark & Brown, Sec. 70-15s-15e. T.D. 7,295 ft.; 7-in. csg. 7,295 ft.; perf. csg. 7,260-90 ft.; I.P. 519 B.P.D.; ¼-in. ck.
Sun Oil Co.'s No. 7 Dibert, Stark & Brown Cypress Co., Sec. 70-15s-15e. R.U.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 1-B Sweet Lake Ld. & Oil Co. 10¾-in. csg. 2,784 ft.
Shell Oil Co., Inc.'s No. 6 Hanzen, Sec. 21-12s-6w. T.D. 8,951 ft.; perf. csg. 8,910-33 ft.; I.P. 880 bbl. P.D.; ¼-in. ck.; well went to S.W.; killed; retstg.
Shell Oil Co., Inc.'s No. 7-A Hanszen, Sec. 20-12s-6w. R.U.
Union Sulphur Co.'s No. 1 Sweet Lake Ld. Co., Sec. 13-12s-7w. Drlg. sh.&L. 7,040 ft.

Cheneyville—Rapides Parish

S. W. Richardson's No. 9 Well, Sec. 53-1s-2e. Drlg. sh. 6,315 ft.

Creole—Cameron Parish

Superior Oil Co.'s No. 10 State-Gulf of Mexico, Twp. 15s-8w. T.D. 8,607 ft.; sdtrkd.; drlg. sd.&sh. 4,312 ft.

Darrow—Ascension Parish

Humble O. & R. Co.'s No. 28 Community, Sec. 30-10s-2e. R.U.
Humble O. & R. Co.'s No. 29 Community, Sec. 30-10s-2e. Loc.
Humble O. & R. Co.'s No. 17 Gumbel, Sec. 36-10s-2e. T.D. 8,570 ft.; P.B. 7,389 ft.; sdtrkd.; T.D. 7,503 ft.; P.B.; sdtrkd.; T.D. 8,341 ft.; rmg.
Kiva Oil Co. No. 1 Dupiessis, Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co.'s No. 10 State, Sec. 1-22s-15e. T.D. 7,918 ft., salt; P.B. 7,825 ft.
Texas Co.'s No. 11 State, Sec. 32-21s-16e 10¾-in. csg. 1,751 ft.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 2 Dent, Unit 2, Sec. 10-2s-2e. Drlg. sh. 8,021 ft.
Amerada Pet. Corp.'s No. 1 Giglio, Sec. 6-2s-3e. T.D. 8,578 ft.; perf. csg. 8,548-70 ft.; I.P. 279 bbl., 10 hrs.; ¼-in. ck.
Amerada Pet. Corp.'s No. 8 Glaize, Sec. 6-2s-3e. Drlg. sh. 3,786 ft.
Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. R.U.
Amerada Pet. Corp.'s No. 1 Monchau, Sec. 1-2s-2e. Drlg. sh. 6,076 ft.
Amerada Pet. Corp.'s No. 1 E. O. Sellers, Sec. 1-2s-2e. T.D. 8,570 ft.; 5½-in. csg. on bttm.; perf. csg. 8,483-8,512 ft.; I.P. 417 bbl., 16½ hrs.; ¼-in. ck.
Gulf Oil Corp.'s No. 1 Moullere, Sec. 1-2s-2e. Drlg. sh.&sd. 4,620 ft.
G. R. Kenedy's No. 1 Josie Hudson, Sec. 1-2s-2e. Loc.
Magnolia Pet. Co.'s No. 1 O. Q. Foster, Sec. 6-2s-3e. Loc.
S. W. Richardson's No. 8 Haas Inv. Co., Sec. 7-2s-3e. T.D. 8,590 ft.; tstg.
Sun Oil Co.'s No. 3 Townsend, Sec. 8-2s-3e. T.D. 8,572 ft.; 7-in. csg. 8,570 ft.

Fausse Point—Iberia Parish

Sun Oil Co.'s No. 1 Planters Lbr. Co., Sec. 27-11s-8e. Loc.
Texas Co.'s No. 7 State, Sec. 35-11s-8e. R.U.

Gibson—Terrebonne Parish

Shell Oil Co., Inc.'s No. 8 Pelican, Sec. 35-17s-15e. M.I.R.

Gordon Island—Plaquemines Parish

Texas Co.'s No. 40 State-Garden, Sec. 38-23s-33e. Drlg. 2,420 ft.
Texas Co.'s No. 41 State, Sec. 38-23s-33e. Drlg. sh. 4,130 ft.

Golden Meadow—La Fourche Parish

Bateman Drlg. Co.'s No. 1 Harry Louviere, Sec. 9-19s-22e. T.D. 5,560 ft.; 5⅛-in. csg. 5,260 ft.; perf. csg. 5,150-80 ft.; S.D.
Bennett O. & R. Co.'s No. 1 Philoxate, Sec. 12-19s-22e. T.D. 8,605 ft.; perf. csg. 8,360-8,400 ft.; blew out, flwg. oil and gas.
Berkshire Oil Co.'s No. 11 Nicol, Sec. 2-19s-22e T.D. 2,680 ft.; 7-in. csg. 2,680 ft.; perf. csg. 2,620-62 ft.; perf. csg. 2,620-30 ft.; I.P. 126 B.P.D.; ¼-in. ck.
Brown & Woods' No. 1 S. Hogan, Sec. 9-19s-22e. T.D. 2,710 ft.; P.B. to 1,500 ft.; sdtrkd.; T.D. 2,672 ft.; 7-in csg. on bttm.; perf. csg. 2,650-65 ft.; would not flow; S.D.
Taylor Fithian's No. 1 Cheramie, Sec. 12-19s-22e., Drk.
Taylor Fithian's No. 1 Martin, Sec. 12-19s-22e. Loc. abd.
Wm. Helis' No. 3 Gaspard, Sec. 9-19s-22e. 6-in. csg. 2,655 ft.; T.D. 2,664 ft.; W.O.S.R.
Geo. Lilly's No. 1 Collins, Sec. 12-19s-22e. T.D. 5,500 ft.; run 5½-in. csg.
Jim McMurray Prod. Co.'s No. 2 Collins, Sec. 12-19s-22e. S.D. 5,135 ft.
M. H. Marr et al's No. 2 B. & D. unit, Sec. 17-19s-22e. Loc.
M. H. Marr et al's No. 3 Terrebonne, Sec. 9-19s-22e. T.D. 5,500 ft.; 5⅛-in. csg. 5,500 ft.; perf. csg. 5,160-76 ft.; S.D.
M. H. Marr et al's No. 4 Adam Terrebonne, Sec. 9-19s-22e. Drk.
Martex Oil Co.'s No. 1-B Rebstock, Sec. 2-19s-22e. 10¾-in. csg. 668 ft.; T.D. 5,361 ft.; perf. csg. 5,172-80 ft.; I.P. 240 B.P.D.; 12/64-in. ck.
Martex Pet. Co.'s No. 2-B Rebstock Community, Sec. 2-19s-22e. T.D. 2,690 ft.; 5-in. csg. 2,684 ft.; perf. csg. 2,667-72 ft.
Martex Oil Co.'s No. 3-A Rebstock, Sec. 2-19s-22e. T.D. 2,665 ft.; 5-in. csg. 2,665 ft.; perf. csg. 2,630-62 ft.; would not flow.; S.D.
Terouche Oil Co.'s No. 2 Cheramie, Sec. 12-19s-22e. Drk.
Texas Co.'s No. 7 Falgout Holding Co., Sec. 9-19s-22e. S.D. 7,940 ft.
Texas Co.'s No. 9 Falgout Holding Co., Sec. 9-19s-22e. T.D. 5,175 ft.; 7-in. csg. 5,162 ft.; I.P. 397 B.P.D.; ⅞-in. ck.
Texas Co.'s No. 10 Falgout Holding Corp., Sec. 9-19s-22e. T.D. 7,940 ft.; 7-in. csg. 7,902 ft.; I.P. 341 B.P.D.; ⅞-in. ck.
Texas Co.'s No. 9 Golden Meadow, Sec. 78-19s-21e. 10¾-in. csg. 738 ft.
Texas Co.'s No. 3 La Terre Co., Sec. 1-20s-21e. T.D. 5,673 ft.; sdtrkd.; drlg. sh. 6,844 ft.
Texas Co.'s No. 4 La Terre Co., Sec. 2-20s-21e. T.D. 2,683 ft.; 7-in. csg. 2,653 ft.; I.P. 65 B.P.D.; 5/32-in. ck.

Grand Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 6-A Grand Prairie Lv. Dist., Sec. 17-20s-10e. T.D. 10,458 ft.; P.B. 10,050 ft.; 5-in. csg. 10,073 ft.; perf. csg. 10,008-22 ft.; flwd. oil and S.W.; sqzd. perf.; reperf. csg. 9,980-90 ft.; I.P. 1,062 B.P.D.; ¼-in. ck.
Gulf Oil Corp.'s No. 7-A Grand Prairie Lv. Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 8-A Grand Prairie Dist., Sec. 5-20s-19e. Loc.
Gulf Oil Corp.'s No. 4 State, Sec. 20-19s-19e. Loc.
Texas Co.'s No. 1 State-Lookout Pass, Sec. 48-20s-18e. Loc.
Texas Co.'s No. 2 State-Lookout Pass, Sec. 31-19s-19e. Drlg. sh. 8,154 ft.

Grand Lake—Cameron Parish

Amerada Pet. Corp.'s No. 3 State, Sec. 12-13s-4w. Drlg. sh. 2,020 ft.
Superior Oil Co.'s No. 7 State, Sec. 11-13s-4w. Drlg. sh.&sd. 8,185 ft.

Hackberry—Cameron Parish

Harrison & Abercrombie's No. 1 Doiron, Sec. 37-12s-10w. 10¾-in. csg. 1,441 ft. drlg. sd.&sh. 4,930 ft.
Stanolind O. & G. Co.'s No. 21-A Cameron Sch. Bd., Sec. 16-12s-10w. Drlg. sh. 6,780 ft.
Superior Oil Co.'s No. 2 Vincent, Sec. 30-12s-10w. Drlg. sh. 8,197 ft.
Texas Co.'s No. 29-B State, Twp. 12s-9w. Cg. sd. 6,096 ft.

Happytown—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Schwing Lbr. & Shingle Co., Sec. 85-7s-8e. M.I.R.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 3 St. Mary Parish Ld. Co., Sec. 37-17s-9e. T.D. 10,867 ft.; 7-in. csg. 10,848 ft.

Jeanerette—St. Mary Parish

Herton Oil Co.'s No. 6 Roane, Sec. 38-13s-9e. T.D. 10,789 ft.; 7⅝-in. csg. 10,260 ft.; stk. cutting tool; P.B. 10,170 ft.; perf. csg. 9,712-20 ft.; rec. S.W.; perf. csg. 9,694-9,702 ft.

Jefferson Island—Iberia Parish

Texas Co.'s No. 4 Jefferson Island Salt, Sec. 58-12s-5e. Drlg. sh. 8,267 ft.
Texas Co.'s No. 3 State, Twp. 12s-5e Drlg. sh. 2,630 ft.

Jennings—Acadia Parish

Brown & Sisson's No. 1 Arnaudet, Sec. 47-9s-2w. Loc.
Glassell-Glassell's No. 3 McFarlain, Sec. 41-9s-2w. Drk.
Glassell-Glassell's No. 8 Trusher, Sec. 47-9s-2w. T.D. 9,165 ft.; sdtrkd.; T.D. 8,760 ft.; run 7-in. csg.
Gulf Oil Corp.'s No. 42 Arnaudet, Sec. 47-9s-2w. Cg. sdy. sh. 7,681 ft.
Illes Pet. Co.'s No. 5 Jen-Haywood, Sec. 41-9s-2w. Drlg. sd.&grvl. 620 ft.
Shell Oil Co., Inc.'s No. 9 Community. Cg. oil sd. 7,386 ft.
Stanolind O. & G. Co.'s No. 116 Crowley O. & M. Co., Sec. 48-9s-2w. T.D. 8,323 ft.; perf. csg. 7,540-55 ft.; I.P. 285 bbl. in 14 hrs.; ¾-in. ck.
Stricker-Pharis et al's No. 1 Gulf fee, Sec. 45-9s-2w. 16-in. csg. 60 ft.; drlg. sh.&L. 5,480 ft.

Lafitte—Jefferson Parish

Texas Co.'s No. 15 Lafitte, Sec. 20-17s-24e. Drlg. sh. 9,763 ft.
Texas Co.'s No. 5 Marrero, Sec. 21-17s-24e. Drlg. sh.&L. 7,868 ft.
Texas Co.'s No. 12 Rigolets Cooperative Fur Co., Sec. 28-17s-24e. Drlg. sh. 10,187 ft.
Texas Co.'s No. 13 Rigolet Cooperative Fur Co., Sec. 29-17s-24e. Loc.
Texas Co.'s No. 3 State, Bayou Norman, Sec. 21-17s-24e. Drlg. sh. 3,687 ft.

La Fourche Crossing—La Fourche Parish

Mikton Oil Co.'s No. 2 Martinez, Sec. 132-15s-17e. 11¾-in. csg. 2,687 ft.; T.D. 4,904 ft.; P.B. 4,700 ft.; drlg. sh. 9,730 ft.

Lake Hermitage—Plaquemines Parish

Gulf Oil Corp.'s No. 11 La Fourche Basin Lv. Dist., Sec. 11-18s-25e. Drlg. sh. 7,196 ft.

Lake Mongoulois—St. Martin

Texas Co.'s No. 8 State, Sec. 10-10s-9e. Drk.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 30 Lake Pelto, Sec. 7-23s-18e. T.D. 5,271 ft., salt; sdtrkd.; T. salt 5,243 ft.; P.B. sdtrk. drlg. sh. 5,260 ft.

La Place—St. James Parish

Pan American Prod. Co.'s No. 1 Godchaux Sugars, Sec. 97-11s-7e. R.U.

New Iberia—Iberia Parish

Acadian Prod. Co.'s No. 4 E. T. Weeks, Sec. 51-12s-7e. Loc.
Wm. Helis' No. 7 J. E. Schwing, Sec. 56-12s-7e. T.D. 8,850 ft.; P.B. 7,840 ft.; T.D. 8,850 ft.; P.B. 8,025 ft.; went back into old hole; P.B. and sdtrk.; T.D. 8,240 ft.; 7-in. csg. 8,200 ft.; well went dead; swbg.
Wm. Helis' No. 9 Schwing, Sec. 56-12s-7e. T.D. 855 ft.; 7-in. csg. 825 ft.; W.O.S.R.
Texas Co.'s No. 2 Bryant, Sec. 25-12s-7e. R.U.
Texas Co.'s No. 7 Bryant, Sec. 25-12s-7e. Loc.
Texas Co.'s No. 14 Duke, Sec. 26-12s-7e. T.D. 5,989 ft.; 7-in. csg. 5,930 ft.
Texas Co.'s No. 15 Duke, Sec. 26-12s-7e. Drk.
Texas Co.'s No. 2 Hebert, Sec. 25-12s-7e. Loc.
Texas Co.'s No. 1 H. Perry Walet, Sec. 2-12s-7e. Drlg. sh. 9,060 ft.
Texas Co.'s No. 2 Smith, Sec. 71-12s-7e. Drlg. sh. 2,030 ft.

North Crowley—Acadia Parish

Humble O. & R. Co.'s No. 3 Stokes, Sec. 33-8s-1e. Drlg. sh. 8,836 ft.

Paradis—St. Charles Parish

Texas Co.'s No. 3 L.L.&E. Paradis, Sec. 8-14s-20e. 10¾-in. csg. 1,448 ft.; T.D. 10,490 ft.; 7-in. csg. on bttm.; cd. O.S. 10,188-10,256 ft.

Plumb Bob—St. Martin Parish

Texas Co.'s No. 13 St. Martin Ld. Co., Sec. 21-8s-7e. Drk.

Port Barre—St. Landry Parish

Gulf Oil Corp.'s No. 17 Wilson-Broach, Sec 4-6s-5e. T.D. 4,861 ft.; P.B. 2,061 ft.; sdtrkd.; T.D. 5,704 ft., salt; P.B. sdtrkd.; drlg. sd.&sh. 4,436 ft.
McDannald Oil Co.'s No. 2 Futral, Sec. 20-6s-5e. Drlg. sh. 3,920 ft.
Y. D. Spill's No. 1 Gaudet, Sec. 4-6s-5e. S.D. 4,700 ft.
Texas Co.'s No. 27 Botney Bay, Sec. 4-6s-5e. Drlg. sh. 3,256 ft.
Westgate-Greenland Oil Co.'s No. 1 Jeansenne, Sec. 20-6s-5e. T.D. 5,286 ft.; 7-in. csg. 5,286 ft.; perf. csg.; S.D. 5,288 ft.

Potash—Plaquemines Parish

Humble O. & R. Co.'s No. 41 Orleans, Sec. 14-18s-15e. T.D. 4,430 ft.; P.B.; sdtrkd.; T.D. 4,742 ft.; sbd.
Humble O. & R. Co.'s No. 42 Orleans Lv. Dist., Sec. 14-18s-15e. Loc.

Quarantine Bay—Plaquemines Parish

Gulf Oil Corp.'s No. 9 State QQ, Sec. 18-19s-17e. Drlg. 8,600 ft.
Gulf Oil Corp.'s No. 12 State, Sec. 18-19s-17e. Drlg. sh. 1,620 ft.

Raceland—La Fourche Parish

Amerada Pet. Corp.'s No. 5 South Coast Corp., Sec. 34-15s-19e. Loc.

Roanoke—Jeff Davis Parish

Humble O. & R. Co.'s No. 7 Kratzer, Sec. 11-9s-4w. T.D. 7,945 ft.; flwg. 13 B.P.H.; ¼-in. ck.

Sorrento—Ascension Parish

Sorrento Synd.'s No. 2 L. L. Bernard Sec. 22-10s-4e. R.U.

South Jennings—Jeff Davis Parish

Stanolind O. & G. Co.'s No. 1 Clare E. Landry and A. A. Hebert. Drlg. sh. 4,568 ft.
Stanolind O. & G. Co.'s No. 1 Morgan, Sec. 15-10s-3w. Bldg. rd.
Stanolind O. & G. Co.'s No. 1 L. Remage, Sec. 9-10s-3w. Bldg. rd.

Starks—Calcasieu Parish

W. T. Burton's No. 1 Industrial Lbr. Co., Sec. 29-9s-1w. Run screen to test; T.D. 7,420 ft.

Sweet Lake—Cameron Parish

Pure Oil Co.'s No. 15 Yount Lee, Sec. 12-13s-8w. Loc.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 7 Buras Levee Bd. Sec. 22-21s-30e. R.U.

Vermilion Bay—Iberia Parish

Texas Co.'s No. 4-B Vermilion Bay, Twp. 16s-5e. Drlg. sh. 5,320 ft.

Villa Platte—Evangeline Parish

Continental Oil Co.'s No. 2 B. G. Fontenot, Sec. 41-4s-2e. Drlg. sh. 6,910 ft.
Continental Oil Co.'s No. 5 Fontenot, Sec. 46-3s-2e. T.D. 8,996 ft.; I.P. 307 bbl. in 15 hrs.; ⅛-in. ck.
Continental Oil Co.'s No. 6 Opelousas, Sec. 47-3s-2e. T.D. 9,168 ft.; I.P. 145 B.P.D.; ⅛-in. ck.
Continental Oil Co.'s No. 3 Adam Tate Sec. 40-4s-2e. Drlg. sh. 8,867 ft.
Continental Oil Co.'s No. 1 David Tate, Sec. 36-3s-2e. Drlg. sh. 1,820 ft.
Danciger O. & R. Co.'s No. 1 J. E. Vidrine, Sec. 1-4s-2e. Cg. 10,227 ft.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc.'s No. 4 Jeanerette. T.D. 10,698 ft.; 7⅝-in. csg. 10,683 ft.

White Castle—Iberville Parish

Shell Oil Co., Inc.'s No. 1 Forest Home. Drlg. sh. 1,409 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co.'s No. 2 Norton, Sec. 12-9s-6w. Drlg. sh. 4,468 ft.
Union Sulphur Co.'s No. 1 Trimble, Sec. 7-9s-5w. Drlg. sh. 7,938 ft.
Woodlawn Oil Corp.'s No. 1 Hebert, Sec. 1-9s-6w. T.D. 9,543 ft.; 7-in. csg. 9,170 ft.; perf. csg. 9,189-93 ft.; flwd. S.W. and dist.; well flwd. 100% S.W.; plld. tbg.; set cmt. retainer at 9,175 ft.; sqzd. perf.; reperf. csg. 8,139-42 ft.; flwd. 40 bbl. dist. per day; S.D.

S. LOUISIANA WILDCATS

Acadia Parish

Tri Parish Drillers, Inc.'s No. 1 Paul Stag, Sec. 4-7s-1w. M.I. rig.

Assumption Parish

Falcon-Seaboard Drlg. Co.'s No. 1 Alex Simoneaux, Sec. 43-12s-13e. R.U.

Beauregard Parish

Atlantic Ref. Co.'s No. 1 Lutcher Moore Lbr. Co., Sec. 13-5s-12w. Drlg. sh. 6,820 ft.
Atlantic Ref. Co.'s No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.
Atlantic Ref. Co. No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.
Atlantic Ref. Co.'s No. 1 D. A. Whitmer, Sec. 26-3s-11w. 10¾-in. csg. 2,037 ft.

Calcasieu Parish

E. W. K. Andreau et al's No. 1 W. W. Blackman, Sec. 20-9s-6w. Drlg. sh. 6,402 ft.
C. L. Arnette's No. 1 Arthur Welch, Sec. 19-10s-12w. 10¾-in. csg. 130 ft.; T.D. 395 ft.; S.D.

Cameron Parish

Phillips Pet. Co.'s No. 1 Miami Corp., Sec. 11-14s-6w. T.D. 10,195 ft.; well tried to blow out; stk. D.S.; fsg.
Superior Oil Co.'s No. 1 State, Calcasieu Lake, Twp. 14s-9w. R.U.

Iberia Parish

Plymouth Oil Co. et al's No. 1 Lynch McHugh, Sec. 13-12s-10e. 10¾-in. csg. 2,519 ft.; S.D. 9,211 ft.

Jeff Davis Parish

Continental Oil Co.'s No. 1 Niblett, Sec. 1-11s-5w. 13⅜-in. csg. 2,085 ft.; drlg. sh. 9,941 ft.
H. M. Naylor's No. 1 Acadia Dev. Co., Sec. 12-10s-2w. Loc.
Union Sulphur Co.'s No. 1 Somson, Sec. 35-7s-4w. Drk.

Jefferson Parish

Vendome Pet. Co.'s No. 1 Coulon, Sec. 15-15s-23e. Canal comp.

La Fourche Parish

Gulf Oil Corp.'s No. 1-B Bowie Lbr. Co., Sec. 69-15s-19e. Bldg. rd.
Humble O. & R. Co.'s No. 1 Caldwell Sugars, Inc., Sec. 115-14s-15e. Drk.
Tide Water Asso. Oil Co. No. 1 Delta Farms, Inc., Sec. 6-17s-23e. T.D. 11,850 ft.; P.B. T.D. 11,810 ft.; perf. csg. 11,780-11,800 ft.; rec. 30 ft. of dist., 400 ft. drlg. mud; P.B. 11,325 ft.; perf. csg. 11,290-11,305 ft.; rec. S.W.; perf. csg. 11,270-80 ft.; 85 stands oil and S.W.; perf. csg. 8,908-18 ft.; rec. 2 jts. dist.; sqzd. perf.; perf. csg. 8,917-22 ft.; 30-min. D.S.T.; 2,800 lb. W.P.; rec. 4 jts. dist.; sqzd.

Orleans Parish

W. T. Burton's No. 1 L.&N.R.R., Sec. 18-

11s-15e. T.D. 10,394 ft.; 5½-in. csg. 10,274 ft.; S.D.
W. T. Burton's No. 2 State, Lake Pontchartrain, Twp. 10s-13e. Drlg. sh. 6,000 ft.; no report.

Plaquemines Parish

California Co.'s No. 1 Delta Minerals, Sec. 2-15s-24e. Drlg.
Gulf Oil Corp.'s No. 1-D Buras Lv. Dist., Sec. 6-23s-31e. 9⅝-in. csg. 8,204 ft.; T.D. 10,103 ft.; 7-in. csg. 10,103 ft.; W.O.C.

Rapides Parish

S. W. Richardson's No. 1 Hillyer-Edwards, Sec. 21-1s-3w. 10¾-in. csg. 1,565 ft.; cg. 6,830 ft.
Smith & Aarnes' No. 1 Eota Realty Co., Sec. 12-4n-3e. Drlg.

St. Bernard Parish

Gulf Ref. Co.'s No. 4 State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; rmd. to 9,658 ft.; lost core bbl.; P.B. sdtrkd. 8,912 ft.; T.D. 10,528 ft.; 7-in. csg. 10,494 ft.; drlg. sdy. sh. 10,638 ft.

St. Charles Parish

R. H. Parker et al's No. 1 C. L. Thompson, Sec. 87-13s-20e. 10¾-in. csg. 2,599 ft.

St. Landry Parish

Pure Oil Co. et al's No. 1 E. M. Bosgni, Sec. 41-6s-4e. 10¾-in. csg. 1,276 ft.; drlg. sh. 8,541 ft.

St. Martin Parish

Wm. Helis' No. 1 Rycade Oil Co., Sec. 33-9s-7e. T.D. 8,899 ft.; sdtrkd. 7,393 ft.; drlg. sh.&L. 8,574 ft.
Wm. Helis' No. 1 J. J. St. Martin, Sec. 32-9s-7e. T.D. 1,181 ft.; abd.

St. Mary Parish

Perry S. Cooney No. 1 A. W. Allain, Sec. 46-13s-9e. S.D. 2,600 ft.
Joe Domingue's No. 1 Allain, Sec. 46-13s-9e. Loc.
Texas Co.'s No. 1 State, Cote Blanche, Twp. 16s-7e. Drlg. sd. and sdy. L. 5,337 ft.

Terrebonne Parish

Barnsdall Oil Co.'s No. 1 Nelson, Sec. 2-21s-11e. 10¾-in. csg. 2,767 ft.; T.D. 10,950 ft.; 8⅝-in. csg. 10,505 ft.
Texas Co.'s No. 4 State, Coon Point, in Lake Caillou, Twp. 23s-14e. R.U.

Vermilion Parish

La. Ld. & Explin Co.'s No. 1 Walter White hrs., Sec. 17-15s-1e. R.U.
Texas Co.'s No. 1 Vermilion Par. Sch. Bd., Sec. 16-13s-4e. T.D. 9,923 ft.; 7⅝ in. csg. 9,918 ft.; T.D. 10,595 ft.; P.B. 10,250 ft.; sdtrkd. 10,300 ft.; cd. S.W. sd. 10,659-79 ft.; drlg. sh. 11,242 ft.

TEXAS

Week Ended February 10

GULF COAST FIELDS

Anchor—Brazoria County

Humble O. & R. Co.'s No. 1 R. H. Carr, Blk. 62. 9⅝-in. csg. 6,950 ft.; drlg. sh. 8,306 ft.
Humble O. & R. Co.'s No. 1 Crockett, J. de Jesus Valderas Sur. 13⅜-in. csg.; drlg. sh. 6,950 ft.
Humble O. & R. Co.'s No. 1 Galznik & Taylor, J. de Jesus Valderas Sur. 9⅝-in. csg. 6,953 ft.; cg. 10,041 ft.
Humble O. & R. Co.'s No. 1 Heim & Holland, S. Marsh Sur. Loc.
Glenn McCarthy's No. 1 Gelaznik, Valderas Sur. Drlg. sh. 9,111 ft.
Glenn McCarthy's No. 1 Neidringhaus, J. Bradley Sur. 13⅜-in. csg. 926 ft.; drlg. sh. 6,730 ft.
Glenn McCarthy's No. 1 Ida M. Salmon and John Muma, Geo. Robinson Sur. 9⅝-in. csg. 6,860 ft.; T. Frio 8,820 ft.; T.D. 10,756 ft.; perf. csg. 9,820-24 ft.; flwg. 5 bbl. dist. per hr.; 21/64-in. bttm.-hole ck.; ¼-in. ck. on top; flwd. gas and dist.; killed well; set retainer at 9,374 ft.; perf. csg. 10,495-99 ft.; flwd. dist. and S.W.

Old Ocean—Brazoria County

Harrison & Abercrombie's No. 8 Armstrong, Polly & Chance Sur. Drlg. sh. 7,467 ft.
Harrison & Abercrombie's No. 7 Bernard River Ld. Dev. Co., C. Breen Sur. Drlg. sh.&L. 9,056 ft.
Harrison-Abercrombie's No. 3 Larsen, C. Breen Sur. Drlg. sd.&L. 9,328 ft.
Sun Oil Co.'s No. 4 McCampbell, C. Breen Sur. 13⅜-in. csg. 1,505 ft.; 9⅝-in. csg. 7,010 ft.; drlg. sh. 8,436 ft.

Seabreeze—Chambers County

Sun Oil Co.'s No. 1 Samuelson & Whitney, T.&N.O. Sur. 131. Drlg. sh.&L. 7,803 ft.

Garwood—Colorado County

Davis & Co., Inc., No. 1 J. R. McLane, I.&G.N. Sur. 41. T.D. 10,536 ft.; set 814 ft. of 5-in. lnr. on bttm.; perf. csg. 10,330-62 ft., 10,394-10,410 ft.; would not flow; reperf. csg. 9,958-84 ft.; swbd. S.W.; trace of gas; sqzd. perf.; flwd. S.W.; retstg.

Big Creek—Fort Bend County

Merrimac Oil Corp.'s No. 1 George, B Wickson Sur. (SW. Flank). Spd. and S.D.

Rosenberg—Fort Bend County

Humble O. & R. Co.'s No. 1 Skripka, C. N. Simpson Sur. Drlg. sh. 8,220 ft.

Capien—Galveston County

Sun Oil Co.'s No. 1-26 State, S. F. Hughes Sur. T.D. 4,918 ft.
Sun Oil Co.'s No. 2-26 State, S. F. Hughes Sur. Loc.
Sun Oil Co.'s No. 3 Zinn-Forman Sur. 13⅜-in. csg. 100 ft.; drlg. sh. 2,030 ft.

League City—Galveston County

Phillips Pet. Co. No. 1 Dr. O. Patton (1 mi. E of production). Perf. csg. 9,177-97 ft.; flwd. S.W.; sqzd. perf.; C.O.
Phillips Pet. Co.'s No. 2 J. S. Rice est., J. M. Perry & Austin Sur. T.D. 11,411 ft.; cutting and pulling pipe at 10,100 ft.
Phillips Pet. Co.'s No. 4 Stewart Title Guaranty Co., S. F. Austin Sur. 10⅝-in. csg. 3,520 ft.; 7⅝-in. csg. 9,510 ft.; T.D. 11,270 ft.; well blew out; killed; rng. reversing tool 8,900 ft.

Clear Lake—Harris County

Humble O. & R. Co.'s No. 31-C fee, J. Routh Sur. Drlg. 1,520 ft.
Humble O. & R. Co.'s No. 32-C Humble-West. T.D. 5,909 ft.; W.O.C.
Humble O. & R. Co.'s No. 7 Hutcheson, Wm. Doble Sur. Drlg. sh. 3,200 ft.

Friendswood—Harris County

Humble O. & R. Co.'s No. 22 Beamer, T. Choate Sur. Drlg. 1,518 ft.
Humble O. & R. Co.'s No. 37 Beamer, T. Choate Sur. Drlg. sh. 3,367 ft.

Fannett—Jefferson County

Gulf Oil Corp.'s No. 3 Bordages, J. Probarth Sur. R.U.

Lovells Lake—Jefferson County

Humble O. & R. Co.'s No. 4-B Steinhagen, Wm. Carr Sur. T.D. 7,800 ft.; W.O.C.
Humble O. & R. Co.'s No. 4 Todd, Wm. Carr Sur. T.D. 7,840 ft.; 5½-in. csg. 7,760 ft.; tstg.
Humble O. & R. Co.'s No. 3-B Steinhagen, A. O. Donnell Sur. 9⅝-in. csg. 1,153 ft.; T.D. 7,816 ft.; P.B. 7,725 ft.
Shell Oil Co., Inc.'s No. 1 Nelson, Wm. Rice Sur. Cg. 7,620 ft.

South China—Jefferson County

Magnolia Pet. Co.'s No. 1 B. E. Quinn, H.T.&B. Sur. 13. Drlg. sh. 2,105 ft.
Titanic Oil Co.'s No. 1-B Guiterman, C. T. Taylor Sur. 12. T.D. 7,570 ft.; perf. csg. 7,488-7,518 ft.; I.P. 7 B.P.H.; 9/64-in. ck.

Esperson—Liberty County

General Crude Oil Co.'s No. 9 Davis, D Kokernot Sur. T.D. 8,314 ft.; well blew out, caught fire, cratered.

Hull—Liberty County

Gulf Oil Corp.'s No. 115 Phoenix Dev. Co., J. Devore Lge. (SE flank deep test). 9⅝-in. csg. 5,904 ft.; T. salt 8,113 ft.; T.D. 8,164 ft., salt.

Martha—Liberty County

Stanolind O. & G. Co.'s No. 2 Flowers, I.&G.N.R.R. Sur. Drk.
Stanolind O. & G. Co.'s No. 1 J. D. Ross, I.&G.N. Sur. 7. Drlg. sh.&L. 6,267 ft.

Segno—Polk County

J. K. Dorrance's No. 5-A Wing, I.&G.N. Sur. 15. Drlg. sh. 7,768 ft.
Gulf Oil Corp.'s No. 4 Quinn, A. Morales Sur. R.U.
Gulf Oil Corp.'s No. 28 Wing, I.&G.N. Sur. 15. Drlg. sh.&L. 7,426 ft.
Gulf Oil Corp.'s No. 29 Wing, I.&G.N. Sur. 14. Drlg. sh. 5,020 ft.
Jordan Drlg. Co.'s No. 2-A Hughes, I.&G.N. Sur. 13. Drlg. sd. 5,526 ft.

Spurger—Tyler County

Republic Prod. Co.'s No. 32 fee, N. Hurd Sur. Cg. 7,618 ft.
Republic Prod. Co.'s No. 33 fee, N. Hurd Sur. Drlg. sh. 5,026 ft.

Hilje—Wharton County

Texas Co.'s No. 2 Peters, E.T.R.R. Sur., Sec. 101. Loc.

GULF COAST WILDCATS

Brazoria County

Glenn McCarthy's No. 1 E. W. K. Andrau, H.T.&B. Sur. 5. 10¾-in. csg. 3,512 ft.; drlg. sh.
Glenn McCarthy's No. 2 Houston Farm Dev. Co., J. Perry & E. Austin Sur. 7. 10¾-in. csg. 3,492 ft.; cg. sh. 10,737 ft.
McDannald Oil Co.'s No. 1 S. A. Hatfield, R. B. Lyle Sur. 4, Lot 51. Loc.
S.E.W. Oil Co.'s No. 1 C. D. Van Werdon, A.C.H.&B. Sur. 87. Drlg. sh. 3,005 ft.
Titanic Oil Co.'s No. 2 S. E. Allen, J. G. and W. McNeil Sur. R.U.
Titanic Oil Co.'s No. 1 T. J. Poole, T.&W. Alley Lge. Drlg. sh. 1,795 ft.

Chambers County

Geo. Anderson et al's No. 1 Veruna Lawrence, W. D. Smith Sur. T.D. 7,215 ft., S.W. sd.; taking sidewall cores.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferrs, H. Chrisman Sur. Loc.

Fort Bend County

Fred Browning's No. 1 Kroescher, W. Bartlett Sur. 10¾-in. csg. 1,128 ft.; T. D. 8,011 ft.; 7-in. csg. 8,195 ft.; sd. 8,126-29 ft.; perf. csg. 8,181-85 ft.; flwg. flwd. gas and S.W.; perf. csg. 7,713-34 ft.; flwd. 75 B.F., 15% S.W.
H. C. Cockburn's No. 1 G. W. Burkett Bundleck Sur. Loc.
Temple Hargrove et al's No. 1 Sugar Ld. Ind., A. Alcorn Sur. Spd.

Galveston County

Continental Oil Co.'s No. 1 Lobit-Cherardi, Perry & Austin Sur. T.D. 9,839 ft.; sdtrkd.; 7-in. csg. 9,998 ft.; drlg. plug.
Standard Oil Co.'s No. 1 State, Sec. 234. 10¾-in. csg. 2,001 ft.; drlg. sh. 6,536 ft.
Sun Oil Co.'s No. 1 State, Sec. 178. Dredge canal; driving piling.

Harris County

T. A. Carlton Oil Co.'s No. 1 J. J. Sweeney, G. W. Eaton Sur. T.D. 7,000 ft.; abd.
Cities Service Oil Co.'s No. 1 Perry V. Cook, Wm. Slayer Sur., Sec. 60. Drlg. sh. 6,800 ft.
Gulf Oil Corp.'s No. 1 H. H. Roberts, A. Roberts Sur. T.D. 7,583 ft., S.D.
N. W. Hunter et al's No. 1 Green's Bayou Homesites, S. C. Hiroms Sur. 10¾-in. csg. 810 ft.; S.D. 4,350 ft.
Martin Thompson's No. 1 Kate Fuchs, J. Boswell Sur. 10¾-in. csg. 802 ft. Drlg. sh. 7,036 ft.

Jackson County

H. J. Porter's No. 1 D. W. Hill, James Kerr Sur. Drlg. sh. 3,466 ft.

Jefferson County

Fidelity O. & Roy Co.'s No. 1 J. J. Craigen, J. E. Broussard Sur. Spd.
Merrimac Oil Corp.'s No. 1 State, Tr. 72, 50 ft. due E of Harwell's abd. hole W.O.; R.U.

Liberty County

Hebert & Smith's No. 1 W. E. Boyt, H &T.C.R.R. Sur. T.D. 8,834 ft.; well tried to blow out; stk. D.S.

Matagorda County

Gulf Stream Oil Co.'s No. 1 G. W. Zipprian, Lake Lessassier Sur. T.D. 4,000 ft.; T.A.
Providence Oil Corp.'s No. 1 E. Strawbridge, J. W. E. Wallace Sur. 10¾-in. csg. 1,230 ft.; cg. sh. 6,610 ft.
Texas Gulf Prod. Co.'s No. 1 Gulf Tex. Oil Co., Ira Ingram Sur. Drk.
Van M. Vincent's No. 1 J. F. McNabb Est., E. R. Wightman Lge. Loc.

Montgomery County

H. C. Cockburn et al's No. 1 Bender. Montgomery Co. Sch. Ld.and De Crow Sur. Loc.
Continental Oil Co.'s No. 1 Bender est., Montgomery Co. Sch. Ld. Sur. 13⅜-in. csg. 1,243 ft.; drlg. sh. 5,630 ft.
David B. MacDaniel's No. 1 Hattie O. Baldwin, Walker Co. Sch. Ld. Sur. 10¾-in. csg. 1,230 ft.; T.D. 8,900 ft., est.; D.S. stk.
Dick Schwab et al's No. 1 Foster est., De LaGarza Sur. Drlg. sh. 1,900 ft.
Sturm & Womack's No. 2 Foster est. Abraham Pevehouse Sur. T.D. 7,265 ft.; S.D.
West Conroe Oil Corp.'s No. 1 R. L. Calfee, H. N. McDillon Sur. S.D. 5,017 ft. ft.; tstd. S.W. 4,516-78 ft.

San Jacinto County

Harrison & Abercrombie's No. 1 Lockin. Wm. Hayes Sur. T.D. 8,598 ft.; abd.

Waller County

Cities Service Oil Co.'s No. 1 P. V. Cook, H.&T.C. Sur. 60. Cg. 6,620 ft.
Hunter & Mayos et al's No. 1 Humble fee, Wm. Hooper Sur. S.D. 6,018 ft.

Washington County

Mount Selman Oil Co. No. 1 Fritz Fuelberg, W. Lightfoot Sur. S.D. 4,510 ft.

Wharton County

H. C. Cockburn et al's No. 1 F. T. Reitz, E.T.R.R. Sur., Sec. 59. Drlg. sh. 4,027 ft.
O. C. Garvey's No. 1 T. N. Menefee, S. P. Middleton Sur. Drk.
O. C. Garvey et al's No. 1 Stockton, S. P. Middleton Sur. Drlg. sh.&sd. 425 ft.
Sam Harrison's No. 1 Neil Carlson, Morris & Cummins Sur. Drlg. 2,300 ft.
J. F. Hutchins' No. 2 Borden, E. M. Cox Sur. A-14. T.D. 5,500 ft.; 5½-in. csg. 4,840 ft.; perf. csg. 4,758-71 ft.; flwd. gas and dist.; no ga.
Magnolia Pet. Co.'s No. 1 C. Swanson, E.T.R.R. 39. R.U.
Dr. T. M. Neal No. 1 fee, Elisha Flack 4,840 ft.
Strake Pet. Corp.'s No. 1 Poole, Sec. 25, G.H.&H. Sur. Drlg. 200 ft.

S. W. TEXAS WILDCATS

Aransas County

Continental Oil Co.'s No. 1 St. Charles Co., R. D. Blassman Sur. 18⅝-in. csg. 290 ft.; T.D. 9,335 ft.; well blew out; caught fire.

Atascosa County

John Durst's No. 1 Wright, Edw. Morris Sur. S.D. 30 ft.
Red Bank Oil Co. et al's No. 1 J. P. Pratt, Francisco de La Garza Sur. 46. T.D. 2,386 ft.; 7-in. csg. 2,347 ft.; acidized; swbd. acid wtr.; slight show oil.

Bastrop County

C. R. Franklin's No. 1 Oscar McDonald, Martha Barker Sur. Drlg. 1,636 ft.

Bee County

Bunte Bros., Inc.'s No. 1 J. T. Earnest, Bee Co. Sch. Ld. Sur. Drlg. sh. 4,687 ft.
Mills Bennett Prod. Co. and Anderson-Prichard Oil Co.'s No. 2 Robinson, J. M. Uranga Sur. (Wlx. test, West Tuleta field); 13⅜-in. csg. 2,537 ft.; drlg. sh. 6,337 ft.
Union Prod. Co.'s No. 56 Ray, T. Hanson Sur.; (Pettus field). Wlx. test; drlg. sdy. sh. 4,530 ft.

Bexar County

Heller Pet. Co.'s No. 1 Wildmann, Juan Sanchez Sur. 34. T.D. 448 ft.; abd.
Joe Noake's No. 1 San Antonio Sub. Irrg. Farm, W. Miller Sur. 180. S.D. 250 ft.
Philtop O. & G. Co.'s No. 1-A Cassin, Fernando Rodriquez Sur. S.D. 2,124 ft.
Philtop O. & G. Co.'s No. 2-A Patton, Fernando Rodriguez Sur. Cg. 330 ft.
L. L. Skaggs' No. 2 Braubach, F. Rodriguez Sur. S.D. 30 ft.
J. A. Tarver's No. 1 Florence Lam, Manuel de Luna Sur. 3. 6⅝-in. csg. 1,205 ft.; T.D. 1,692 ft.; cd. bkn. sh. 1,638-92 ft.; S.S.O.; bailed est. 10 bbl. oil P.D. before sanding up; S.D.
J. A. Tarver et al's No. 1 Joseph Leonard, Manuel de Luna Sur. 3. R.U.

Blanco County

E. L. Nixon's No. 3 Crist, John McClenechen Sur. 94. Drlg. 1,264 ft.

Burleson County

H. Y. Barnett's No. 1 Giesenschlag, J. W. Hollingsworth Sur. Cg. sdy. sh. 1,385 ft.

Caldwell County

Kean & Williamson's No. 1 E. E. Rector, J. Roberts Sur. S.D. 300 ft.

Calhoun County

Coronado Corp. No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. "Tight well"; reported to be tstg.; 5½-in. csg. 9,750 ft.; perf. csg. 9,500-9,600-9,700 ft.; rec. S.W.; milling on pkr.

De Witt County

Atlantic Ref. Co.'s No. 1 Pearl Conwell, Chas. Lockhart Sur. Drlg. sh. 7,096 ft.
I. K. Howeth et al's No. 1 Keepers, Antonio Lazo Sur. Drlg. 3,180 ft.

Duval County

Alaska-Tex Oil Corp.'s No. 1 W. P. Peters, B.S.&F. Sur. 791. S.D. 2,750 ft.
J. B. Blanchard et al's No. 1 W. L. Rogers, J. Poitevent Sur. Loc.
W. L. Catlin et al No. 1 Louis Escapule, J. Poitevent Sur. 73. R.U.
Hiawatha O. & G. Co.'s No. 1-A Herberger, Santos Flores gr. T.D. 5,875 ft.; 7-in. csg. 5,873 ft.; perf. csg. 5,864-72 ft.; flwg. dist.; no ga.
Landreth Prod. Co.'s No. 1 Caballero, J. Poitevent Sur. 281. Drlg. sdy. sh. 2,160 ft.
H. D. Rogers' No. 1 Rossen, R. F. Neeley Sur. 48. T.D. 1,512 ft.; abd.
Standard Oil Co. of Texas' No. 1 Rodriguez, San Pedro de Charco Redondo gr. Drlg. sh. 3,420 ft.

Falls County

J. Shaunfield's No. 1 Barganier, J. M. Graham Sur. Bda. L.; S.S.O.; T.D. 1,188 ft.; recmtd. csg.; W.O.; cmt. failed to hold.

Frio County

Holland Oil Co.'s No. 1 Anna Witting, Dan T. Price Sur. T. clk. 4,750 ft.; drlg. clk. 4,950 ft.

Guadalupe County

Diamond Half Oil Corp.'s No. 1 W. J. Strey, Josefan de los Cortinos Sur. 49. Drlg. 980 ft.
A. J. Hollifield's No. 1 A. J. Day, Jas. Hinds Sur. T.D. 2,837 ft.; 7-in. csg. 2,357 ft.; P.B. 2,692 ft.; swbd. sulf. wtr., S.S.O.; P.B. 2,415 ft.; W.O.P. equip.
Knute Evjen et al's No. 1 W. C. Brawner, J. D. Pickens Sur. S.D. 2,394 ft. 5½-in. csg. 2,300 ft.; reacd.
F. D. Spratt's No. 1 Wm. Zuchi, Claiborne Rector Sur. 38. S.D. 710 ft.
Wellington Oil Co.'s No. 1 R. L. Beaty, H.&T.C. Sur. R.U.

Hidalgo County

Brinkocter Oil Co.'s No. 1 Daskam hrs. of Miguel Cano, Porc. 45. Drlg. 3,218 ft.
Gulf State Oil Co.'s No. 2 Cardinas, San Salvador del Tule gr. 16-in. csg. 157 ft. drlg. sh. 6,360 ft.
Humble O. & R. Co.'s No. 1 T. A. Ogg, Rio Bravo subd. Cg. 7,610 ft.

Jim Hogg County

Daubert & Achning's No. 1 A. Vela,

Joseph Odom Sur. 572. Drlg. sh. 2,319 ft.
Humble O. & R. Co.'s No. 2 C. F. Mestena O. & G. Co., C.&M.R.R. Sur. Sec. 389. Drlg. sh. 2,630 ft.
Locke Purnell's No. 1 Sarita, Sur. 619. Drlg. sh. 200 ft.
C. A. Nibert et al's No. 1, Yeager Sur. 20. S.D. 2,240 ft.

Jim Wells County

Arkansas Fuel Oil Co.'s No. 1 Brand, Geo. Reynolds Sur. 38. Cg. 4,760 ft.; 6-min. D.S.T. 4,700-51 ft. tstd. 450 lb. W.P.; rec. 1 pt. dist.
Austin Pet. Co. No. 1 H. M. Reed (8 mi. NW Orange Grove), J. Poitevent Sur. Cmtd. surf. pipe 190 ft.; S.D. 210 ft.; abd.; skd. rig 100 ft. N.; R.U.&S.D.
Rodney DeLange's No. 1-A McNeil, Benito Lopez de Jaen Sur. R.U.
Reese & Dunn et al's No. 1 G. M. de Perez, Le Tinaja de Lara gr. Drlg. sh. 3,125 ft.
Reese, Dunn & Tsesmelis No. 1 Perez, Manuel Barrera gt. R.U.
Sun Oil Co.'s No. 2 East, A.B.&M. Sur. 39. Loc.
R. K. Taylor's No. 1 M. H. Reed, J. Poitevent Sur. Drlg. sh. 4,120 ft.
Gus Tsesmelis et al's No. 1 Garcia hrs., La Anima Sola gr. Loc. abd.

Karnes County

Clyde Eckols' No. 1 J. M. Newberry, Carlos Martinez Sur. 5½-in. csg. 3,002 ft.; T.D. 3,008 ft.; S.D.; csg. collapsed at 2,940 ft.

Kendall County

C. M. Dewey's No. 2 Seidensticker, R. Davis Sur. No. 20. S.D. 835 ft.

Kimble County

Austin Bridge Co.'s No. 1 Wilkinson, Brooks & Burleson Sur. S.D. 25 ft.
Schwab-Carlyle & Auld's No. 1 Baker, F. C. Stisser Sur. 417. Loc.

Kinney County

Cooper Gas Co.'s No. 1 L. L. Farr, Geo. L. Bledsoe Sur. 835. S.D. 567 ft.

Kleberg County

Humble O. & R. Co.'s No. 1 O. J. Mork, Rincon de Santa Gertrudis gr. Cg. 5,189 ft.
Skelly Oil Co.'s No. 1 State, Laguna de Los Olmos gr., Tr. 385. Driving piling.

Lee County

Fred Pederson et al No. 1 Brown, David Hudson Sur. T. Glen Rose L. 6,600 ft.; drlg. sdy. L. 7,428 ft.

Live Oak County

H. F. Baker's No. 1 Herring, Stephen Hays Sur. S.D. 1,450 ft.
E M. Jones' No. 1 West, Lot 400, Blk. D, of West subd. Drlg. sh. 4,036 ft.
Moore Dev. Co.'s No. 1 fee, R. W. Fant Sur. 238. T.D. 2,788 ft.
W. R. Quinn et al's No. 1 Stolze, J. F. Huizar Sur. 31. R.U.
L. W. Stieren's No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

Cities Service Oil Co. and Continental Oil Co.'s No. 2-B Lowe, A. J. Martin Sur. T.D. 1,612 ft.
F. H. Gohlke's No. 3 Miles, Wm. Kohfler Sur. 78. S.D. 410 ft.
Purvis & Appell's No. 1 Nueces Ld. & Livestock Co., R. E. Halter Sur. 26. Loc.
Roger Putnam's No. 1 Lucy Claunch, M. Hely Sur. 5. 10-in. csg. 200 ft.; S.D. 1,321 ft.
C. D. Scarborough No. 1 First Natl. Bk of Rosebud, Jas. Garner Sur. S.D. 1,955 ft.

Medina County

T. J. Tapp's No. 1 Bendele, F. Sauer Sur. 117. S.D. 205 ft.
York Pet Co.'s No. 1 Kate Smith, Marie Ihnken Sur. 11. T.D. 950 ft.; 5½-in. csg. 690 ft.

Milam County

Fritz Fuchs' No. 1 Unnaseh, Jose Justo Liendo Sur. S.D. 1,080 ft.

Nueces County

John Manley et al's No. 1 Ruegg, Geo H. Pauls subd. of Driscoll ranch. Loc
Shields Oil Co.'s No. 1 Nichols, Geo. H. Pauls Trs. of Driscoll ranch. Drlg. sh. 3,812 ft.

Refugio County

C. L. Norsworthy's No. 1 B. J. Fox, Jas. Fagan Sur. 20-min. D.S.T. 4,729-37 ft.; rec. 360 ft. oily mud; 540 ft. S.W.; S.D. 6,715 ft.; 5½-in. csg. 5,950 ft.; perf. csg. 5,895-98 ft.; I.P. 157 B.P.D.; 7/64-in. ck.; T.P. 870 lb.; C.P. 1,250 lb.; grav. 40.1.
Norsworthy Prod. Co.'s No. 1 Woodt John Sinnott Sur. T.D. 6,508 ft. (cor.). S.D.

San Patricio County

Fred Wood et al's No. 1 C. E. Hart, Wm G. Burgess Sur. Cd. sd., gas odor 6,907-16 ft.; make D.S.T.

Starr County

Hebert Aid's No. 1 Camilo Garza, J. J. Gutierrez Porc. 72. Loc.
Clopton, Mitchell et al's No. 1 F. W. Seabury, J. A. Falcon, Porc. 80. 8¼-in csg. 88 ft.; T.D. 2,757 ft.; S.D.; S.W sd.; 5¼-in. csg. 1,401 ft.; perf. csg. 1,328-33 ft.; tstg.; flwg. small amt. of oil per day.
Interstate Minerals, Inc.'s No. 1 Green & Manning, J. J. Garza Falcon Porc. 81. T.D. 1,732 ft.; 7-in. csg. 1,155 ft.; S.D. 1,740 ft.
Lynes & Robertson's No. 1 Villareal, C. C.S.D.&R.G.N.G.R.R. Sur. 241. Loc.
Sun Oil Co.'s No. 1 Rodriguez, Santa Teresa gr. Cg. 5,310 ft.

Val Verde County

Joiner Oil Co. et al's No. 1 Clyde Sellers. Drlg. bkn. L. 1,678 ft.

Victoria County

Colton & Colton's No. 1 W. C. Buckholtz, F. G. Hidalgo Sur., Lot 27. 10¾-in. csg. 710 ft.; drlg. sh. 4,720 ft.
Mayo and Renwar Oil Co.'s No. 1 Bayer, Garcia Sur. T.D. 6,485 ft.; making sqz. job.
Mayo, Thompson Drlg. Co.'s No. 1 Ragsdale, V. Garcia Sur. Drlg. sh. 5,225 ft.
L. L. Smith's No. 1 Carolina Stubbs est., R. Manchola Sur. T.D. 4,775 ft.

Webb County

G. W. Bascom's No. 1 Geo. Adami, H.& G.N.R.R. Sur. 333. T.D. 1,344 ft.; abd.
Continental Oil Co.'s No. 1 Bruni est., Sur. 600. Drlg. sh. 1,460 ft.
O. W. Killam's No. 64 Bruni, M. H. Rodriquez Sur. 446. T.D. 1,879 ft.; 5½-in. csg. 1,830 ft.; perf. csg. 1,802-06 ft.; tstg. gas, small amt. oil, and wtr.
Sinclair Prairie Oil Co.'s No. 1 Callaghan Ld. & Cattle Co., B.S.&F. Sur. 585. Spd.
Sorey Oil Co.'s No. 1 A. M. Bruni, J. V. Borrego gr. Drlg. sh. 876 ft.
Tide Water Asso. Oil Co. No. 7 Bruni, Blk. 7, M. Arispe gr. (deep test Bruni field). T.D. 8,959 ft.; well blew out; hole bridged; stk. D.S.; prep. to P.B and test approx. 5,600 ft.; perf. D.P 5,636-45 ft. and 5,621-31 ft.; tstd. dry; sqzd. off; perf. csg. 5,620-30 ft.; tstd. 4 B.O.P.D.; 2,000,000 cu. ft. gas; ¼-in. ck.; T.P. 150 lb.; 350 lb. on D.S.

Williamson County

H. C. Lefors' No. 1 H. J. Priesmeyer. Jehu Bevil Sur. 56. S.D. 1,107 ft.

Wilson County

Henshaw Bros.' No. 1 E. W. Schneider, Don Casper Flores Sur. 10-in. csg. 99 ft.; drlg. sh. 1,936 ft.
W. D. Moore et al's No. 1 Lorenz, Morris May Sur. S.D. 75 ft.
E. E. Young's No. 1 O. D. McMeans, C. W. Parrott Sur. R.U.

Zapata County

Graham & Neilson et al's No. 1 Guerra, B.S.&F. Sur. 161. T.D. 2,260 ft.; abd.
J. P. Martin et al's No. 1 Serapio Vela El Grullo gr. T.D. 3,108 ft.; sdtrk. drlg. sh. 3,058 ft.
Ralph Ogden's No. 1 Juan Benavides, El Socorro gr., Sh. 2. Cg. 1,380 ft.

WEST TEXAS WILDCATS

Andrews County

Richmond Drlg. Co. and T. F. Hunter's No. 1 University, 660 ft. N and E lines of Sec. 21, Blk. 11, University Sur. Drlg. 2,982 ft.

Crane County

Gulf Oil Corp.'s No. 5 M. B. McKnight, Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. 6,041 ft.
Gulf Oil Corp.'s No. 1-K University, 330 ft. N and E lines, Sec. 2, Blk. 31, University Sur. Bldg. road.
Gulf Oil Corp.'s No. 12 Waddell, Sec. 30, Blk. 26-B, P.S.L. Sur. 12-in. 532 ft. S.O. 3,215-20 ft.; S.S.G. 3,635 ft.; drlg. 3,695 ft.

Crockett County

Continental Oil Co.'s No. 1-B Todd unit, SW¼ Sec. 30, Blk. W.X., C.G.&S.F. Sur.; Ordovician test. Topped Simp at 6,040 ft.; sul. wtr. at T.D. 7,010 ft.; P.B. to 6,620 ft.; P.B. 6,336 ft.; making 2 to 3 B.O.P.H.; prep. abd. at 7,010 ft., T.D.
Continental Oil Co.'s No. 2 Todd, 1,980 ft. S and W lines of Sec. 29, Blk. W. X., G.C.&S.F. Sur. Skd. rig W and R.U.
Moore Bros.' No. 1 Henderson, Sec. 51 Blk. OP., G.C.&S.F. Sur. Fsg. bailer 812 ft.
Stanolind O. & G. Co.'s No. 5 Todd-A, 990 ft. from S line, 330 ft. from W line, Sec. 67, Blk. UV, G.C.&S.F. Sur. Prep. treat 1,368-85 ft.; S.S.G.&O. 1,375-85 ft.; est. 30 B.O.P.D.; pmpd. 11 B.O. in 16 hrs. and pmpd. off; still tstg.

Ector County

M. A. Grisham et al's No. 1 R. B. Cowden, 600 ft. from N and E lines, Sec. 4, Blk. 45, Twp. 1n (deep test), T.&P. R.R. Sur. Drlg. 3,552 ft.
I. T. I. O. Co.'s No. 1 Johnson, Sec. 34, Blk. 43, Twp. 1s, T.&P. Sur. Heading 170 B.O.P.D. while drlg. below 4,150 ft.; S.I. 4,171 ft.; est. 200 B.O.P.D. through csg.; made 131 B.O. in 12 hrs.; tstg.
Landreth Prod. Corp. and Shell Oil Co. Inc.'s No. 1 J. L. Johnson, Sec. 43 Blk. 43, Twp. 1s, T.&P. Sur. Swbd. 21 B.O. 14 hrs. after acd. at 4,264-76 ft.; test est. 800 ft. O.I.H.; R.U.R. to D.D. to Holt pay; drlg. 4,950 ft.
Stanolind O. & G. Co.'s No. 1 W. F. Cowden, SW¼ Sec. 4, Blk. 43, Twp. 1n, T.&P. Sur.; deep-lime test. T. Yates sd. 2,790 ft.; T. Clearfork 5,142 ft.; bailed 68 gal. oil in 15 hrs.; still tstg.

Gaines County

Oil Well Drlg. Co.'s No. 1 R. E. Sikes. Sec. 10, Blk. 25-A, P.S.L. Sur. S.D.O. 4,898-5,005 ft.
Stanolind O. & G. Co.'s No. 1 T. S. Riley, Sec. 11, Blk. H, D.&W. Sur. Shot 4,762-4,864 ft.; C.O.; bailed 1 bbl. hourly before shot; T.D. 4,864 ft.; swbd. 10 B.O. in 8 hrs.; bailed dry and bailed 10 B.W. in 9 hrs.; tstg.

Hockley County

Denver Prod. & Refg. Co. and Heimerich & Payne, Inc.'s No. 1 Whiteface Farms, 660 ft. from S and E lines Labor 22, Lge. 77, Reeves C.S.L. Sur. Drlg. 3,520 ft.
Geo. P. Livermore's No. 1 R. D. Glimp, Sec. 8, Blk. X, P.S.L. Sur. Tstg. after 3rd stage acid treatment, made 143 B.O. in 5 hrs.; S.I. 5,030 ft.; T.D.

Irion County

W. S. Kelly's No. 1 Yates, Conrad Poppe Sur. 730. S.D.O. 345 ft.

Loving County

I. E. Whitesides' No. 1 fee, Sec. 24, Blk. 76. Drlg. 705 ft.

Lynn County

R. H. Gill's No. 1 W. H. May, NE¼ Sec. 259, Blk. L, B.S.&F. Sur.; Honolulu Oil Co. farmout. Loc.
Guthrie Lake Oil Co.'s No. 1 Mary L. Shoe, Sec. 20, Blk. 8, E.L.R.R. Sur.; 800-ft. test. C.O. cavings 265 ft.
H. F. Wilcox Oil & Gas Co.'s No. 1 E. L. Powell, 330 ft. from W and 990 ft. from S lines Sec. 134, Blk. 12, E.L. Sur. Drlg. 343 ft.

Mitchell County

Ewing & Hanes' No. 1 G. I. Grable, Sec. 195, Blk. 3, H.&G.N. Sur.; 1,800-ft. test. Drlg. 160 ft.
N. V. Hilburn's No. 1 E. T. Strain, Sec. 82, Blk. 97, H.&T.C. Sur. S.D. 250 ft.
Sinclair Prairie Oil Co.'s No. 1 E. E. Erwin, Sec. 1, Blk. 5, H.&T.C. Sur. S.D. O. 3,065 ft.

Pecos County

R. L. Baker's No. 1 White & Baker, Sec. 86, Blk. 194, G.C.&S.F. Sur. Drlg. 440 ft.
Humble O. & R. Co.'s No. 1 Young, Sec. 33, Blk. 10, H.&G.N. Sur. U.R. 4,786 ft.
B. McCandless and General Crude Oil Co.'s No. 1 Virginia W. Crockett, Sec. 5, Blk. 110, T.C.R.R. Sur. T. Ellenburger 4,401 ft.; tstg. est. 6,000,000 cu. ft. gas after acd.; rng. tbg.; T.D. 4,479 ft. est. 4,000,000 cu. ft. gas and 365 B.O. P.D.; made 531 B.O. in 5 hrs.; S.I.
Phillips Pet. Co.'s No. 1 Sarah Byrne, Sec. 114, Blk. 11, H.&G.N. Sur.; lost hole; skd. 50 ft. N; tight well; swbg. 1,565 ft.
Sides' No. 1 Blackstone-Slaughter-Lackey, 250 ft. from S line, 1,100 ft. from W line, Sec. 20, Blk. 129, T.&S.L. Sur. Loc.
Skelly Oil Co.'s No. 1 J. S. Masterson (Ordovician test), Sec. 101, Blk. 10, H &G.N. Sur. Topped Ellenburger 44 ft.; high set csg. for test at 4,562 ft.

Reeves County

T.A.T. Oil Co.'s No. 1 U. G. Orenderff, Sec. 10, Blk. 59, P.S.L. Sur. Fsg. tools 1,650 ft.

Scurry County

Coffield & Guthrie's No. 1 Reiter, Sec. 155, Blk. 97, A.T.&T.C. Sur. P.B. 2,990 ft.; S.D.O. 3,500 ft.

Terrell County

E. M. Thomasson's No. 1 Bates, Sec. 31, Blk. 1, H.&G.N. Sur. Drlg. 1,800 ft.

Tom Green County

Johnson's No. 2 Rape, Sec. 2, Blk. 1, H.&T.C. Sur. S.D.O. 370 ft.
B. C. Mann's No. 1 Joe Funk, 330 ft. N, 1,650 ft. E lines, Sec. 34, Blk. 5, H.& T.C. Sur. S.D.; csg. 260 ft
Dan Short's No. 1 J. G. Davidson, 2,161 ft. from SL, 2,493 ft. from NW cor. L. P. Moore Sur. S.S.O.&G. 2,660-65 ft.; drlg. 3,010 ft.

Ward County

Gulf Oil Corp.'s No. 5 Wristen, Sec. 18, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. Drlg. 3,417 ft.
Magnolia Pet. Co.'s No. 2-43 Sealy, Sec. 43, Blk. F, G.M.M.B.&A. Sur. W.O. 2,952 ft., T.D.; making 69,000,000 cu. ft. gas; incr. amt. oil; perf. lnr. 2,990-96 ft.; P.B. 2,925 ft.; tstd. sul. wtr.; cmtd. off perf. and W.O.C.
Kenneth Slack's No. 1 Bird Hayes, Sec. 148, Blk. 34, H.&T.C. Sur. Drlg. 3,687 ft.

Yoakum County

Osage Drlg. Co.'s No. 1 Willard, 1,980 ft. E line, 660 ft. N line, Sec. 805, Blk. D, Gibson Sur. Flwd. 1,200 B.O.P.D. after acd.; T.D. 5,170 ft.; top pay 4,940 ft.
Sloan & Zook and T. N. Sloan's No. 1 J. E. Fitzerald, Sec. 22, Blk. D, Gibson Sur., extreme NE cor. of county. 7-in. csg. 4,812 ft.; T.D. 5,658 ft.; prep. D.D.

TEXAS PANHANDLE

Deaf Smith County

Uscan's No. 1 Farwell, Sec. 18, Blk. 3, X. Sur. C.O. 5,650 ft.

Lipscomb County

Phil O'Neil's No. 1 Jacob Koch, NW SW Sec. 539, T.&T.C.R.R. Sur. S.D. 1,100 ft.

Ochiltree County

James R. Macon et al's No. 1 W. R. Norris, SW SE Sec. 212, Blk. 48, H.&T.C. Sur. T.D. 6,274 ft.; test sec. at 5,000 ft.; est. 6,000,000 cu. ft. gas on D.S.T.; tstg.; bailing 6,274 ft.; unloaded csg. at well and preparing to test increasing shows of oil and gas; S.D.W.O. 6,274 ft.

Potter County

Canadian River Gas Co.'s No. 1 City of Amarillo, in city limits just north of city. Drlg. 689 ft.
Lee Whitaker's No. 1 D. Pavillard, Sec. 101, Blk. 2, A.B.&M. Sur. Fish out; S.D. 915 ft., csg.

Sherman County

I. T. I. O. Co.'s No. 1 S. C. Bryant, C NW¼ Sec. 369, Blk. T-1, T.&N.O. Sur. S.D.W.O. 2,739 ft.

E. C. TEXAS WILDCATS

Houston County

J. C. Wynne et al's (Shell Oil Co., Inc.) No. 1 G. E. Dorsey, M. Sallas Sur., 2½ mi. S of Percilla; E 102 ac. of tr.; 10,000-ft. test. D.S.T. 8,541-76 ft.; rec. mud cut with gas and oil; drlg. 10,213 ft.

Limestone County

Peyton Bros.' No. 1 Harris, P. Varella Sur. P.B. to 4,495 ft.; fsg. 4,994 ft.
Murray Samuell and Zephyr Oil Co.'s No. 2 Cannon Barron, NE part of 320-acre tract in W. G. McKenzie Sur, half mile NE of pool opener. T. Pett. 5,594 ft.; T.D. 5,705 ft.; C.O. with est. 1,000,000 cu. ft. gas showing.
J. J. Tyrell's No. 1 A. G. Easterling, J. L. Chavert Sur., 11 mi. E of Groesbeck. S.D. 4,010 ft.

McLennan County

T. M. Smart's No. 1 J. W. Mann, C. O'Campo Sur., 4 mi. S of Waco. S.D. 1,327 ft.

Smith County

Shell Oil Co., Inc.'s No. 1 H. Campbell, P. Lively Sur., 1½ mi. N of Chapel; 9,500-ft. test. T. Paluy 5,533 ft.; T. Glen Rose 5,818 ft.; T. Tr. Pk. 8,247 ft.; perf. csg. 8,058-68 ft.; made 163 B. O.P.D.; prep. perf. again higher up.
Sun Oil Co.'s No. 1 E. B. Huddle, Wm. Dickerson Sur., 2 mi. S of discovery dist. producer in Chapel Hill area; drlg. 7,124 ft.

Trinity County

Gossage et al's No. 1 First Natl. Bnk., B. F. Wright Sur., S of Trinity. R.U. and S.D.

EAST TEXAS

(Border Counties)

Bowie County

W. E. Niell's No. 1 Lewis Fort, 600 ft. NL, 150 ft. EL, 103-ac. tr., L. Peters Sur. S.D. 960 ft.

Marion County—Other

A. F. Anding's No. 1 Duke Hart, M. G. Noll Sur. T.D. 2,402 ft., sd.&sh.; set 8-in. csg.; W.O.S.R.
Dr. Blackshear's No. 2 Moseley, D. Lane Sur. T.D. 2,742 ft.; W.O.S.R.
R. W. Cosby's No. 1 Stiles, J. G. Reeves Sur. T.D. 2,406 ft.; W.O.S.R.
B. I. Daniels' No. 1 T. O. Livingston, G. Coore Sur. Set 10-in. csg. 43 ft.; W. O.C.
J. D. Reynolds' No. 1-A Terry est., 150 ft. S, 1,820 ft. E, NW cor. Lewis Needham Sur. R.U.
J. D. Reynolds' No. 5 Terry est., W. Coore Sur. T.D. 2,359 ft.; W.O.S.R.
Sanders & Wyckliffe's No. 1 W. P. Stiles, M. Noll Sur. Set 6-in. csg. 2,218 ft.; W.O.C.
John Wrather's No. 1 Torrens, T. J. White Sur. T.D. 2,440 ft.; M.I.C.T.

Marion County—Rodessa

Holcomb & Thomason's No. 1-A Madine, 400 ft. WL, 467 ft. NL, 33.6-ac. tr., A. D. S. Coy Sur. R.U.

Shelby County

W. H. Neel et al's No. 1 J. W. Hanson, C 64-ac. tr., A. Sanford Sur. M.I.M.
Superior Oil Co.'s No. 1 Pickering Lbr. Co., 990 ft. E, 330 ft. N, SW cor. Lot 4, W. J. Crane Sur. Drlg. sh. 1,565 ft.

NORTH TEXAS WILDCATS

Archer County

C. B. Christie & Phillips' No. 1 H. H. Taylor, 330 ft. from S and 3,358 ft. from W lines of Harvey Cox Sur., Abst. 67. Spd.
C. W. Clark et al's No. 1 D. D. Strange, 150 ft. from S and E lines Lot 31, Block 5, Clark & Plumb Sur., SE of Archer City. Loc.
Clark-Cox's (Deep Rock Oil Co.) No. 1 J. M. McCarty, NW cor. C. C. Brown, Abst. 20. Loc.
Continental Oil Co.'s No. 1 L. F. Wilson, NE cor. SW¼ Sec. 20, H.&T.C. Sur. (1½ mi. E of Hull-Silk). Drlg. 3,100 ft.
Bert Ligon's No. 1-D White, NE cor. Lot 1, Blk. 40, A.T.N.C.L. Sur. (1½ mi. E of Hull-Silk field). Drlg. 2,500 ft.

Petroleum Producers Co.'s No. 1 D. L. Wolf, NW cor. Sec. 2, J. Poitevent Sur., Abst. 1310 (5,200-ft. test). Drlg. 3,985 ft.

Roeser & Pendleton's No. 1 J. R. Parkey, Sec. 11, Blk. 3, H.&T.C. Sur. (north outpost to Mankins deep pool). Spdg.

Waldo E. Stephens et al's No. 1 Hattie B. Adae, SE part of Blk. 7, Palo Pinto Co. Sch. Lds., 3 mi. SE of Griffin pool. T.D. 5,100 ft. S.D.O.

Baylor County

Hall-Jordan Oil Co.'s No. 1 D. E. Blackman, SE NE Sec. 28, Blk. 3, H.&T.C. Sur. Drlg. 4,791 ft.

Staton & Bunch's No. 1 Robertson, C.S. L., NE cor. Blk. 10, Stanton subd. S. S.O. 2,996-3,050 ft., 3,124-84 ft.; drlg. 3,535 ft.; S.D.O.

Clay County

L. T. Burns' No. 1 E. Henderson, SW cor. SE¼ Sec. 2615, T.E.&L. Sur. Loc.

L. T. Burns' No. 1 J. G. Mullins, 330 ft. from N and E lines of N 160 ac. of Sec. 2617, T.E.&L. Sur. Loc.

Shell's No. 1 Davis, Sec. 93, J. H. Belcher. O.W.D.D.; S.D. 5,136 ft.

Shell Oil Co., Inc.'s No. 1 M. L. Henderson, 6,000-ft. test, in Blk. 2605, T. E.&L. Sur. S.S.O. 3,419-36; S.S.O. 3,507-19 ft.; S.S.O. 3,573-85 ft.; S.S.O. 3,655-57 ft.; T.D. 3,824 ft.; P.B. 3,570 ft.; cmtd. 4½-in. 3,494 ft.; P.B. to 3,497 ft.; perf. 12 shots 3,362-66 ft.; swbd. 43 B.O.P.H.; perf. six shots 3,120-22 ft.; tstg.

Cooke County

Big Indian Oil & Development Co.'s No. 1 T. E. McFadden, SW cor. 212-ac. tract, D. Martin Sur., Abst. 654. R.U.

Cranfill & Staley's No. 1 S. H. Peery, SW B.B.B.&C. Sur., Abst. 145. Drlg. 2,310 ft.

D. W. Crawford et al's No. 1 J. Dangelmayer-Texas Co., SE cor. tract, Blk. 14, Thomas Scott Sur., Abst. 900. Loc.

Mudge Oil Co.'s No. 1 Bonner, 330 ft. from S and E lines of east 30 ac. of west 61 ac. of south 101 ac., A. Emanuel Sur., Abst. 1196. Drlg. 410 ft.

Mudge Oil Co.'s No. 1 Sam Seagrave, 330 ft. from SW cor. of 193 ac. lease, O. M. Gray Sur., Abst. 415. R.U.

C. E. Sykes' No. 1 H. Christian, 1,000 ft. from W and SW lines, J. P. Bailey Sur., Abst. 70. Drlg. 1,079 ft.

Cottle County

J. E. Burns et al's No. 1 J. E. Moss, Sec. 5, Blk. L, A. Forsythe Sur. Jnkd. 225 ft.; skd. 20 ft. S; S.D. 1,823 ft.

Foard County

Domain Oil Co.'s No. 1 Worsham & Wilson, Marshall University Sur., 11 miles SW Crowell. Loc.

Foster Pet. Corp.'s No. 1 E. M. Gamble, 4,500-ft. test; E. 180 ac. of S½ Sec. 13, Blk. A, H.&T.C. Sur. Had gas sd. 2,300-29 ft.; est. 5,000,000 cu. ft.; T.D. 3,417 ft.; S.D. to run csg. and test gas sd. 2,300-29 ft.; perf. 2,305-09 ft.; 5 shots; blowing est. 5,000,000 cu. ft. gas and spray S.W.

Ohio Oil Co.'s No. 1 M. E. Rasberry, NE cor. Sec. 26, S.P. Survey, 5,000-ft. test. Loc.

Hardeman County

Carter & Taylor's No. 1 Norton, NW cor. 91-ac tr. in Blk. 3, Robt. Young Sur., 16 mi. N of Quanah. S.D. 256 ft.

Norris & Gilbert's No. 1 Robert Weekley, SW SE Sec. 87, Blk. 16, H.&T.C. Sur. Drlg. 345 ft.

Jack County

J. B. Cooper and Paul P. Steed's No. 1 Mathis, J. H. Nesmith Sur., Abst. 1562. Cd. oil sd. 2,873-79 ft.; T.D. 2,883 ft.; est. 100 bbl.; tstg.

W. L. Forbes et al's No. 1 N. W. Davis, B.B.&C. Sur. Drlg. 990 ft.

Hanlon-Buchanan, Inc.'s No. 1 A. T. Smith, NE cor. Sec. 2, S.P.R.R. Sur., Abst. 2175. Drlg. 2,995 ft.

Harper Pet. Co.'s No. 1 J. W. Kinder, SW¼ Sec. 2667, T.E.&L. Sur., Abst. 762 ft. Drlg. 2,150 ft.

Pitzer & West's No. 1 Sloan, Sec. 2786, T.E.&L. Sur. Rng. 8-in.; cg. dry. sd. 2,770-80 ft.; drlg. 4,685 ft.

H. R. Smith's No. 1 I. G. Yates, SW cor. John Holderman Sur., 6 miles NW Jacksboro. Loc.

Montague County

W. H. Gant and Continental's No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. 6⅝-in. 6,843 ft.; brkn. sdy. L. S.O. 6,843 ft.; treat. 8,000 gal. acd.; test showed O.& G. 7,036-56 ft.; T.D. 7,333 ft.; rng. 5-½-in. lnr. at 6,843-7,333 ft.; C.O. and tstg.

W. K. Jones' No. 1 E. E. Johnson, Sec. 5, Abst. 230, E.T. Sur. (5,500-ft. test). Drlg. 1,910 ft.

W. B. Omohundro's No. 1 Seay, Sec. 32, Blk. 4, H.&T.C. Sur. (5,500-ft. test). Drlg. 4,953 ft.

Wm. J. Payne's No. 1 T. M. Baker, NW¼ Lot 42, W. J. Wells Sur., Abst. 844, 5,000-ft. test. Loc.

Sinclair Prairie Oil Co.'s No. 1 W. B. Howard, W. Wallace Sur., Abst. 841 (5,000-ft. test). Drlg. 5,192 ft.

Stanolind O. & G. Co.'s No. 1 McCool, NW cor. Jacob Lenow Sur. (¼-mi. W outpost to Rogers field). Drlg. 750 ft.

Wichita County

E. C. Harlin, Jr., et al's No. 1 I. H. Kemner, SE cor. Blk. 28, Lge. 1, Denton Co. Sch. Lds. (5,200-ft. test). Loc.

Bert Ligon's No. 2 C. F. Collins, SW cor. J. T. Tyler Sur., Abst. 568. O.S. 4,217-21 ft., 4,273-96 ft.; T.D.; drlg. plug.

W. B. Omohundro et al's No. 1 L. N. Lochridge, L. Netherly Sur., Abst. 240 (5,000-ft. test). W.O.C.

Wilbarger County

H. G. Gay's No. 1 A. S. Ross, 1,320 ft. EL, 660 ft. SL, Sec. 65, Blk. 15, H.& T.C. Sur. Drlg. 1,900 ft.

Rogers & Cavin's No. 1 A. P. Morris, Sec. 3, Blk. 14, SW Harrold. S.D. 2,809 ft.

Young County

F. T. Conner's No. 1 Wright McClatchey est., SW cor. Sec. 284, T.E.&L. Sur. Loc.

Coaden Pet. Corp.'s No. 1 W. E. Steele est., NE part of R. M. Burton Sur., Abst. 8, 7 mi. SE Graham. 4,200-ft. test; tight hole. 6⅝-in. 3,734 ft.; tstg. 3,835-85 ft.; est. 10,000,000 cu. ft. gas; S.D.O. 3,894 ft.

H. W. Dyer's No. 1 M. G. Cheney, M. L. Terry Sur., Abst. 1261. Drlg. 690 ft.

K. R. March's No. 1 Ed. Burton, NE cor. Blk. 99, J. A. True Sur., Abst. 1640. 4 mi. SE Graham, 4,250-ft. test. Drlg. 3,810 ft.

A. T. Strong et al's No. 1 E. C. Stovall, Sec. 2946, T.E.&L. Sur. (4,800-ft. test). Drlg. 4,375 ft.

Taubert & McKee Drlg. Co.'s No. 1 Shanafelt, P. Pointevent Sur., Abst. 1309. 6⅝-in. 4,012 ft.; treating 2,000 gal. acid 4,437-4,500 ft.; P.B.; H.F.W. 4,398-4,410 ft.; R.U. spdr.

James Toughy et al's No. 1-C F. Akers, W. McClure Sur., Abst. 183. S.S.G. 3,-994-4,005 ft.; S.O. 4,005-20 ft.; est. 4,-000,000 cu. ft. gas; tstg.

WEST CENTRAL TEXAS DISTRICT

Brown County

Shallow Oil, Inc.'s No. 1 S. M. Black, Wm. Ranch road, 7½ mi. SE Brownwood. S.D.R. 772 ft.

A. M. Stalcup's No. 1 J. C. Morris, 900 ft. S and 700 ft. E lines of Morris tr. in John Goodwin and W. B. Hester surveys. Loc.

Wilson Oil Co., Inc., No. 1 M. Bowden Sec. 138, W. E. Gilliland Sur. Drlg. 2,-150 ft.

Callahan County

Green & Owens' No. 1 Murray, 156 ft. from N and 1,725 ft. from E lines of Jacob Trask Sur. 761. Drlg. 815 ft.

J. C. Hunter and H. L. Graham's No. 1 R. B. Leggett, Sec. 7, Blk. 8, S.P. Sur. Loc.

W. Lee's No. 1 H. W. Ross, 2,420 ft. W and 1,540 ft. S lines, Sec. 98, B.B.B.& C. Sur. Loc.

Reeves' No. 1 Alexander, NE part of Sec. 12, E.T.R.R. Co. Sur. Fsg. 1,060 ft.

J. L. Reeves' No. 1 N. A. Estes, SW¼ Sec. 4; Blk. 8, S.P. Sur., 2½ mi. south Bowles pool. Loc.

Coleman County

Anzac Oil Corp.'s No. 1 McCord, 2,200 ft. E, 2,196 ft. S of B.B.B.&C. Sur. Loc.

Kynaston-Culbertson-Culbertson & Bozeman No. 1 J. P. McCord, Sec. 159, J. W. Meeks Sur. S.D.O. 2,787 ft.

J. C. Ort's No. 1 Emet Walker, SE cor. Hicks Sur. W.O.C. 700 ft.

Robertson & Bradford's No. 1 Morris, 330 ft. N, 1,582 ft. W lines, Blk. 2, G.H.&H. Sur. Loc.

E. B. Tinsley and C. C. Campen's No. 1 W. Webb, H. Odle Sur. 178. S.D.O. 500 ft.

Eastland County

Bradford & Robinson's No. 1 J. P. Morris, 330 ft. N and W lines of E½ W½ Sec. 176, G.H.&H. Sur. Loc.

Butler & Horne and E. J. Keough's No. 1 L. Waters, Sec. 83, Blk. 3, H.&T.C. Sur. Drlg. 1,740 ft.

Dobbs Oil Corp.'s No. 1 Thomasson, S. H. Key Sur., 330 ft. from N and 846 ft. from E lines of 80-acre tract, M.I.M.

Dobbs Oil Corp.'s No. 1 Mrs. R. L. Poe, 1,320 ft. from S and E lines of SE¼ Sec. 37, Blk. 3, H.&T.C. Sur. Loc.

F. S. Holden's No. 1 J. F. Nichols, L. A. McDonals Sur., Abst. 829. S.D.O. 3,175 ft.

States Oil Corp.'s No. 1 V. N. Owens, NE Sec. 23, Blk. 2, T.&N.C. Sur. Loc.

W. A. Stiles et al's No. 1 H. F. Duncan, Sec. 10, Blk. 2, H.&T.C.R.R. Sur. Plts.

E. E. Thate's No. 1 Smith, T. Moffett Sur. 246. Loc.

Erath County

T. Gray's No. 1 C. Young hrs., NW cor. of Stephen Smith Sur., Abst. 682. &T.C. Sur. (6,000-ft. test). R.U.

T. G. Jackson No. 1 J. W. Taylor, Prater Sur., Abst. 1029, 4 mi. NE of Desdemona. Drlg. 2,516 ft.

J. F. Morissey et al's No. 1 R. J. Sikes, J. Hargrave Sur., 6 mi. N of Stephenville, 5,000-ft. test. Drlg. 1,623 ft.

Fisher County

Montour Prod. Co.'s No. 1 Taggart, 1,980 ft. W and S lines, Sec. 184, Blk. 2, H. &T.C. Sur. (6,000-ft. test). Drlg. 2,560 ft.

S. and D. Daube's No. 2 Bennett, NE¼ Sec. 51, Blk. 2, H.&T.C. Sur. S.D. test lime 3,687-3,704 ft.; swbd. 28 B.O. and 4 B.W. daily at 3,640 ft.; T.D. 3,705 ft. S.D. 3,705 ft.; may re-treat.

Hamilton County

A. J. Caldwell's No. 1 W. W. Jones, 1,002 ft. from NE and 150 ft. from SE lines of W. H. Crowder Sur. Drlg. 540 ft.

Wallace & Vickers' No. 1 C. C. Lund, J. P. Bailey Sur. 51. S.D.O. 3,453 ft.

Haskell County

K. N. Nowels' No. 12 M. S. Pardue, SW cor. Sec. 1, S.F.I.W. Sur., 4½ mi. east Stamford. S.S.O. 2,235-52 ft.; S.S.O. 3,-399-3,410 ft.; prep. acidize 3,395-3,420 ft.; est. 25 B.O.P.D., natural; reaming csg. from 3,225 ft. to 3,391 ft.; will set 6⅝-in. csg. 3,394 ft.; P.B. 3,420 ft.; tstd. sulf. wtr.

Jones County

Danciger Oil & Ref., Inc.'s No. 1 P. V Nelson, SE¼ Sec. 186, B.B.B.&C. Sur., 4 mi. SE Stamford. Drlg. 2,785 ft.

J. E. Farrell's No. 1 F. B. Reid, NW¼ Sec. 31, D.&D. Sur. (3,500-ft. test). Drlg. 250 ft.

Humble O. & R. Co.'s No. 1 Ed Clift, 453-ac. tr. in E ½ of Ambrose Crain Sur. 214. Loc.

T. D. Humphrey's No. 1 H. C. Hall, SE Sec. 1, Blk. 17, T.&P. Sur., 5 mi. N of Hawley pool. U.R. 1,700 ft.

Iron Mountain Oil Co.'s No. 1 I. F. Wiley, 330 ft. from S and E lines of SW¼ Sec. 14, Deaf & Dumb Ld. Loc.

Keeler's No. 1 Radford, SE¼ Sec. 20, Blk. 4, H.&T.C.R.R. Sur. S.D.O. 1,800 ft.

Roberts' No. 1 J. Jeffreys, Sec. 7, Blk. 15, T.&P. Sur., 1½ mi. W of Sandy Ridge pool. Drlg. 3,130 ft.

Shackelford County

Georgian Oil Corp.'s No. 1 Black ranch, C NE¼ of T.E.&L. Sur. No. 390, 10 miles NE of Albany, Ordovician test. Drlg. 1,960 ft.

Swann & Gorsuch's No. 1 Sam Lazarus, SE SE Sec. 80, Blk. 13, T.&P. Sur. M.I.M.

Andrew Urban, Jr.'s No. 1 T. T. Brooks, 150 ft. N and W lines of NE 40 ac. of 106-ac. tr. in Sec. 90, University Lds. Sur. Loc.

Stephens County

Grace & Woods' No. 1 Joe Beaty, NE cor. W. M. Bales Sur. 1110 (semiwildcat). Sat. at 3,614 ft.; D.D. to 3,658 ft.; made 150 bbl. daily.

Jones Drlg. Co.'s No. 1 Corbett, SE Sec. 3, Blk. 3, S.P. Sur., 1½ mi. NE of Fagg area. Loc.

Panhandle Ref. Co.'s No. 1 Frank Magers, SE Sec. 1, Blk. 3, S.P. Sur., 1¾ mi. N of Fagg area. Loc.

Pitzer & West and Brazos-Young Oil Corp.'s No. 2-B N. G. Price, SE cor E½ SW Sec. 67, B.A.L. Sur. Saturation in L. 3,510-14 ft.; drlg. 3,740 ft.

Stonewall County

Shell Oil Co., Inc.'s No. 1 A. E. Smith, Sec. 143, Blk. 1, H.&T.C. Sur.; 6,000-ft. test. S.S.O. 4,395-97 ft.; U.R. 5,-065 ft.

Throckmorton County

Normandie Oil Corp.'s No. 1 Travis Co. Sch. Lds., Sec. 37, Abst. 254, 5,500-ft. test. Drlg. 1,512 ft.

Taylor County

J. C. Turner's No. 1 E. A. Sheppard, NE SW Sec. 19, B.A.L. Sur. Fsg. csg. 1,-215 ft.

FLORIDA

Dade County

Wm. G. Blanchard et al's No. 1 Everglades, 200 ft. E, 100 ft. N, SE cor Sec. 31-53s-35e. Set 16-in. csg. 140 ft.; no report.

Levy County

Florida Oil Discovery Co.'s No. 2 Cedar Key, SW SW NE Sec. 9-15s-13e. T.D 5,266 ft.; S.D. 4,150-79 ft. Set 4-in. csg. 4,230 ft.; perf. 4,150-79 ft.; ran tbg. and swbd. slight trace oil and S.G.; bailing S.W.; prep. perf. csg. 4,119-32 ft.

Harkey & Houck's No. 1 Crapps, Sec. 15-14s-17e. T.D. 900 ft.; no report.

Nassau County

St. Mary's River Oil Corp.'s No. 1 Hilliard Turpentine Co., NW cor. NW SE Sec. 19-4n-24e. Reported S.O. 4,795-4,810 ft.; S.D. 4,814 ft. T.D.

Suwannee County

Wm. G. Blanchard et al's No. 1 Lucy Cotton, 774 ft. N, 153 ft. W, SE cor. NE Sec. 35-3s-11e. S.D. 184 ft.

J. W. Phillips Oil Explin. Co.'s No. 1 Shilkett, NW NW Sec. 14-4s-14e. S.D. cor. T.D. 369 ft.

GEORGIA

Clinch County

Georgia Resources, Inc.'s No. 1 Gillican Dist. 4. Set 12-in. csg. 325 ft.; S.O. 400 ft.; fsg.

Montgomery County

E. O. Moses' No. 3 Montgomery, SW R.R. station, Uvalda Sur. Drlg. sh. 750 ft.; no report.

MISSISSIPPI

Attala County

F. R. Jackson's No. 1 Federal Land Bank, 410 ft. S, 620 ft. E NW cor. NW SE Sec. 29-16n-9e. Drk.

Kosciusko Oil Co.'s No. 1 Jones, 600 ft. NW cor. Sec. 5-15n-9e. Loc.

P. & M. Oil Co.'s No. 1 J. A. McMillin, 300 ft. SW cor., SE SE Sec. 26-13n-5e. Drk.

Choctaw County

Garland Anthony et al's No. 1 Ballard, SE cor. Sec. 8-18n-1e. T.D. 22 ft.; S.D.

Copiah County

Triangle Drlg. Co.'s No. 1 W. W. Broome, 153 ft. SW cor. SW SE Sec. 1-10n-8e. T.D. 15 ft.; arng. resume drlg.

Hinds County

Crescent Oil Mill's No. 1 fee, E side Mill St., fire zone No. 3, City of Jackson, Sec. 3-5-1e. Set 8⅝-in. csg. 822 ft.; Set 5½-in. csg. on btm.; drld out to 2,468 ft.; reported tested 50,000 cu. ft. gas and water; T.D. 2,468 ft.; tstg.

Issaquena County

W. E. Hall's No. 1 Irby Charping, approx. C NE NW Sec. 29-10n-8w. Drk.

Locke & Mellard's No. 1 W. Gary, 660 ft SE cor., NW Sec. 14-9n-6w. Loc.

Tatum, Dunbar & Shaddock's (Germany, Lucy & Fair) No. 1 Mohanna, E½ SW Sec. 9-18n-3e. Set 18-in. csg. 20 ft.; comp. R.U.; S.D. high wtr.

Itawamba County

G. C. Grasty et al's No. 1 Ky. Lbr. Co., 1,320 ft. E, 660 ft. S, C Sec. 7-10s-10e. Twisted off D.S.; skd. 24 ft. S and spd.; set 10¾-in. csg. 170 ft.; S.O. 1,500 ft.; T. Trenton L. 1,690 ft.; T.D. 1,794 ft.; bailed dry; drlg. sh. 2,165 ft.

Jefferson Davis County

F. E. Courson et al's No. 1 L. J. Bailey, 330 ft. SW cor. SW NE Sec. 4-6n-18w. Set 8⅝-in. csg. 932 ft.; cd. 2,853-61 ft.; rec. 6-in. sd.; gas odor; T. Wlx. 3,512 ft.; cd. 3,639-71 ft.; rec. sd. S.G.; D.S.T. 3,651-71 ft.; rec. 1,250 ft. S.W. and gas bubbles in 10 min.; B.H.P. 1,950 lb.; T.D. 5,402 ft.; T.D. 6,012 ft.; ran Schlumberger; D.&A.

Kemper County

M. R. Crabb et al's No. 1 W. T. Caldwell, NW SE Sec. 25-9n-15w. 10¾-in. csg. 86 ft.; set 6-in. csg. 1,320 ft.; T.D 1,640 ft.; acid. with 1,000 gal.; S.D. W.O.

Lamar County

Miss.-La. Oil Synd.'s No. 1 Simmons, 1,020 ft. N, 56 ft. W, SE cor. NE Sec. 32-3n-14w. S.D. 920 ft. (cor. T.D.).

Monroe County

Willmut G. & O. Co.'s No. 1 Roberts, NW¼ Sec. 18-13s-17w. D.S.T. 2,410-30 ft.; Amory gas zone, dry; S.G. 2,844-52 ft.; hard cemented sd., odor oil 2,821-72 ft., D.S.T., no results; ran Schlumberger and set 7-in. csg. 2,810 ft.; drlg. plug to test.

Pike County

S. R. Crouch's No. 1 Cupit, 360 ft. N, 660 ft. W, SE cor. NE SW Sec. 25-2n-7e. Set 6-in. csg. 729 ft.; S.D. 2,390 ft.

Prentiss County

Home Dev. Co.'s No. 1 Mrs. A. Allen, Sec. 8-7s-9e. T.D. 1,527 ft.; S.D.

Sharkey County

Eureka Pet. Co.'s No. 1 W. H. Cooper, 1,980 ft. S, 660 ft. W NE cor. Sec. 13-14n-6w. Spdg.

Simpson County

Cleve Love et al's No. 1 N. E. Garner, 300 ft. N and E of C Sec. 1-10n-17w. O.W. D.D.; O.T.D. 3,145 ft.; arng. resume drlg.

Warren County

H. C. Cummings et al's No. 1 T. H. Morrissey, C E½ W½ NE Sec. 8-17n-2e. Spud. and S.D. 20 ft.; W.O. fuel.

Yazoo County

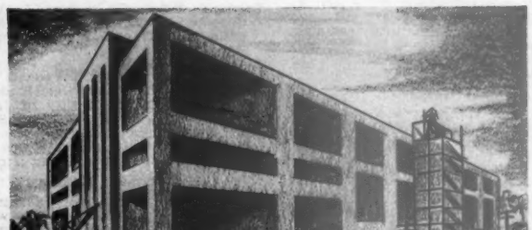
Harry Hanbury et al's No. 1 Brooks, SW Sec. 17-10-2. Loc.

Hill & Hill et al's No. 1 Kinkead Plantation, 1,796 ft. SE cor. NE¼ Sec. 31-11-3. 7⅝-in. csg. 128 ft.; rep. rotary; drlg. sdtrkd. hole; sd. & strks. L. 2,728 ft.

Hassle Hunt's No. 3 Johnson, C NW SE Sec. 11-10-3. Woodruff sd. 4,225-50 ft.; *(Continued on Page 117)*

LEGAL

DEPARTMENT OF THE INTERIOR, Bureau of Mines Helium Plant, Amarillo, Texas.—Sealed bids will be received until 2:00 p.m. C.S.T. March 7, 1940, covering the sale of the following Government property: One Worthington-Laidlow Gas Compressor—3 stage, 16½" x 10" x 5" x 16" stroke; 180 R.P.M.; cap. 31,200 cu. ft./hr. free air from atm. to 600 lb. pres.; direct-connected to a 210-H.P. Syn. motor, 2300 volt—60 cycle—3 phase; used very little; inspection invited; location, Central Depot, Bureau of Air Commerce, Fort Worth, Texas. One Norwalk Twin-Duplex Gas Compressor—3 stage air end, 16" x 10½" x 4½" x 24" stroke; direct steam-drive of Corliss type; steam cyl. dia., 29"; cap 1174 cu. ft./min. free air atm. to 1200 lb. pres.; 110 R.P.M.; steam pres. 125 lb.; condition unknown; inspection advisable; location Lone Star Compressor station, Petrolia, Tex. For details and bid forms address Bureau of Mines, P. O. Box 2250, Amarillo, Texas.



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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ont., Feb. 10.—Figures issued by the Alberta Lands and Mines Department at Edmonton show that in 1939 the production of crude and naphtha from all Alberta fields totaled 7,594,411 bbl., the highest figure in the history of the province. This compared with 6,742,039 bbl. in 1938 and 2,796,903 bbl. in 1937.

Turner Valley limestone crude production was 7,180,161 bbl., with 70,650 bbl. naphtha production from limestone gas wells and 296,787 bbl. from absorption plants. In 1938 the three classifications were lumped to make a total of 6,681,883 bbl.

Production of all Alberta fields in December totaled 485,618 bbl. This included Turner Valley limestone oil wells, 452,148 bbl.; limestone gas wells, 6,658 bbl.; absorption plants, 23,260 bbl.; shallow crude, 673 bbl.; Red Coulee, 1,102 bbl.; Wainwright, 1,252 bbl., and miscellaneous fields 525 bbl.

The record output of Turner Valley crude was established under substantial proration.

While the production of the outlying areas has at no time ranked very high, some seven wells in the Red Coulee and six in the Wainwright field, with a few other isolated producers, have, up to the end of 1939, yielded an aggregate close to 1,000,000 bbl. In Turner Valley four shallow crude producers have in the same period yielded 458,417 bbl.

Increase in Allowables

Effective February 2, the Alberta Conservation Board increased the aggregate allowable for Turner Valley to 21,000 bbl. a day from the January 23 figure of 18,000 bbl. Before January 23 the figure had been 12,000 bbl.

Turner Valley Completions

In Section 28-20-3w5, North Turner Valley, Home Oil Co.'s No. 4, LSD 9, finished in the Madison at 8,332 ft., looks like a large producer. Following tests of the lower porous zone which, after acidizing, yielded 905 bbl. in 15 hours, the packer was set between the horizons and the upper zone acidized with 2,000 gal. The ensuing test showed initial flow of 1,680 bbl. in 24 hours, with gas-oil ratio around 785 cu. ft. and gas flow of 1,321,000 cu. ft. In the ensuing 3 hours the well produced 45 bbl. an hour. The upper zone was later reacidized with 3,000 gal. Official test for allowable is being made.

In Section 31-18-2w5, South Turner Valley, Anglo-Canadian Oil Co.'s No. 7, LSD 9, is finishing below 8,391 ft., more than 460 ft. in the Madison, after getting exceptional porosity in the lower lime.

Tests in the Lime

In Section 33-20-3w5, North Turner Valley, Anglo-Canadian Oil Co.'s No. 7, below 7,876 ft. after getting the Madison at 7,688 ft. At this depth the upper porous horizon had not been reached, indicating an exceptionally steep dip with prospects of a thicker section of lime to be drilled.

In Section 8-19-2w5, West Central field, South West Petroleum's No. 3, LSD 3, is below 6,880 ft., after getting the lime at 6,720 ft. In Section 5-19-2w5, Vanpeg Royalties' No. 1, LSD 9, is below 6,519 ft., more than 100 ft. in the Madison.

West Central Field

In Section 13-19-3w5, Arrow's No. 1, LSD 16, is in the lower Blairmore formation below 7,115 ft. with the lime expected around 7,800 ft.

In Section 6-19-2w5, East Crest Oil Co.'s No. 5, LSD 9, is through the red beds of the Blairmore formation below 6,190 ft. and getting close to the McDougall-Segur sand.

North Turner Valley

In the Waite Valley area, National Petroleum Corp.'s No. 3, LSD 4, Section 25-20-4w5, is below 6,950 ft. and apparently getting into the Fernie shales, overlying the Madison.

Steveville Oil Show

In the Steveville field, about 100 miles east of Calgary, Standard of British Columbia's No. 1 Princess, LSD 13, Section 22-20-12w4, has encountered a considerable gas flow with some oil in the Devonian limestone below 5,200 ft. The well is cased to 3,240 ft. and is deepening from 5,254 ft. It got the Devonian lime at 3,969 ft., after getting some shows of gas and oil in the Madison between 3,165 and 3,254 ft. This is the first Steveville test to be drilled into the Devonian, though three wells drilled by the Anglo-Canadian Oil Co. last year encountered good gas showings in the top of the Madison.

Tests in the Foothills

On the Brazeau structure, in the northern foothills west of Edmonton, Home Oil Co.'s No. 1, LSD 16, Section 7-43-17w5, will probably move rotary outfit from North Turner Valley to deepen from 6,665 ft. The test encountered some gas in the McDougall-Segur sand around 6,645 ft. and is expected to get the lime about 8,000 ft.

On the Grease Creek structure Grease Creek-Northwest Co.'s No. 1, LSD 2, Section 13-29-7w5, is shut down in the lower Blairmore formation at 7,017 ft. owing to frozen water supply.

Ontario Drilling

In the Malahide field, Elgin County, Ontario, Union Gas Co.'s No. 39, Lot 15, Concession 5, Malahide Township, is below 800 ft.

In Essex County Eugene Coste & Co.'s No. 1, Lot 89, North Talbot Road, Colchester Township, is below 150 ft.

On Knapp's Island in Malden Township, Essex County, a Michigan syndicate is below 2,300 ft. after encountering a little gas.

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure-drop
July	16	3,420	+20	73,669*	855	(*)
August	16	3,460	+40	50,383	850	(*)
September	16	3,380	—80	71,657	850	896
October	16	3,395	+15	73,882	875	(*)
November	16	3,441	+46	73,029	900	(*)
December	16	3,420	—21	†74,493	900	3,547

*Indicates no change or gain in pressure. †Indicates allowable; rest reported production. ‡Note ratio reduction.

Field closed in from August 17 to 27.

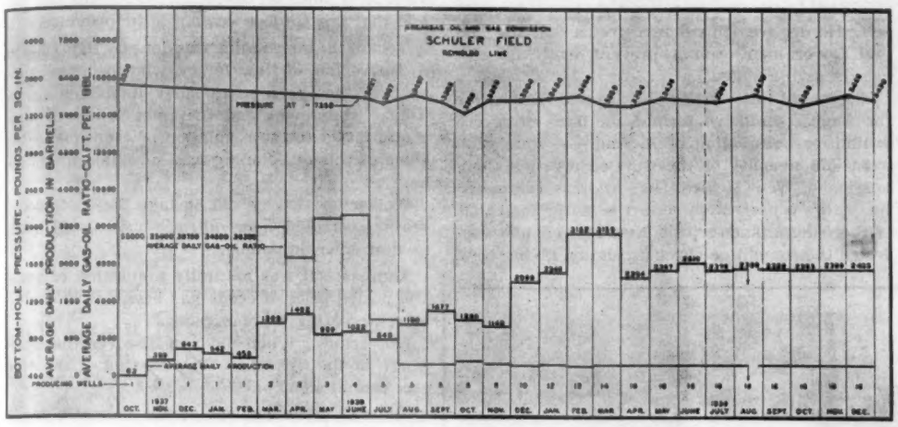


Chart 7

VILLAGE FIELD—LIME PPOOL

Location: Township 17s, Range 19w, Columbia County. Geology: Anticlinal fold, 7,050 ft. subsea; oolitic limestone; discovered by Standard Oil Co.'s No. 1 W. P. Phillips, May 26, 1938. Well spacing: 40 acres. Engineering data: Gas-oil contact, 7,101 ft. subsea; water, 7,123 ft. subsea; effective section, 20 ft.; porosity 20 per cent; connate water, 20 per cent; shrinkage, 30 per cent; recovery, 50 per cent; original reserves, 3,800,000 bbl.; producing acres, 440; combination drive. Operation data: Gas-oil ratio, original 1,000, present 6,500; Gravity, 41° A.P.I.; bottom-hole pressure, original 3,350, present 3,315 (January 1, 1940); total drop, 35; oil production, 369,490 bbl.; gas production, 2,881,759,000 cu. ft. Recovery data: Per pound drop in bottom-hole pressure, oil 10,557 bbl., gas 82,336,000 cu. ft. (January 1, 1940).

PRESSURE—PRODUCTION—GAS-OIL RATIO

(Pressure from control chart end each month)

Date—	Wells	Bottom-hole pressure	Pressure change	Monthly production (bbl.)	Gas-oil ratio (cu.ft./bbl.)	Bbl. recovered oil per lb. pressure drop
June 1938	1	3,335	—15	5,517	1,000	368
July	1	3,325	—10	6,079	1,000	608
August	2	3,310	—15	8,370	1,500	550
September	2	3,300	—10	9,432	7,000	943
October	3	3,295	—5	11,795	7,500	2,359
November	3	3,310	+15	10,676	10,000	(*)
December	4	3,310	0	14,277	11,000	(*)
January 1939	5	3,315	+5	15,988	11,400	(*)
February	5	3,317	+2	14,279	11,600	(*)
March	5	3,298	—19	18,988	9,100	999
April	6	3,327	+29	20,088	10,000	(*)
May	6	3,280	—47	16,884	10,600	359
June	8	3,245	—35	24,153	9,000	690
July	9	3,250	+5	31,202	8,400	(*)
August	9	3,355	+105	18,628	6,760	(*)
September	9	3,340	—15	29,198	6,500	1,947
October	10	3,327	—13	32,345	6,500	2,488
November	11	3,323	—4	37,478	6,500	9,370
December	11	3,315	—8	†44,113	6,500	5,514

*Indicates no change or gain in pressure. †Indicates allowable; rest reported production.

Field closed in from August 17 to September 1.

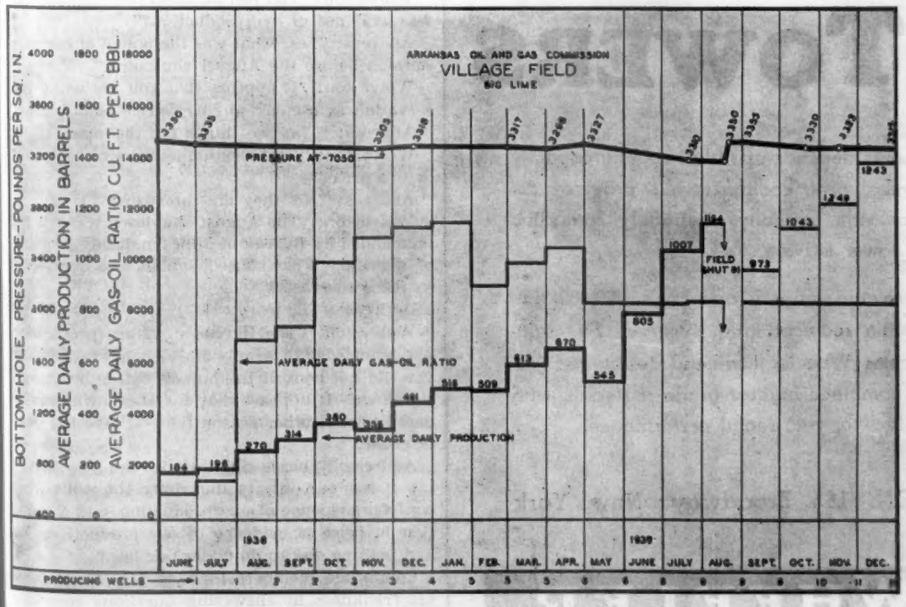


Chart 8

Arkansas' Conservation Act

(Continued from Page 55)

shall such amount be produced in a different manner than that which may be authorized.

Section 10. Waste of oil or gas as defined in this act is hereby prohibited.

Section 9. (f) "Waste" in addition to its ordinary meaning, shall mean "physical waste" as that term is generally understood in the oil and gas industry. It shall include:

1. The inefficient, excessive or improper use or dissipation of reservoir energy; and the locating, spacing, drilling, equipping, operating or producing of any oil or gas well or wells in a manner which results, or tends to result, in reducing the quantity of oil or gas ultimately to be recovered from any pool in this state.

2. The inefficient storing of oil; and the locating, spacing, drilling, equipping, operating or producing of any oil or gas well or wells in a manner causing, or tending to cause, unnecessary or excessive surface loss or destruction of oil or gas.

3. Abuse of the correlative rights and opportunities of each owner of oil and gas in a common reservoir due to nonuniform, disproportionate, and unratable withdrawals causing undue drainage between tracts of land.

4. Producing oil or gas in such manner as to cause unnecessary water channeling or coning.

5. The operation of any oil well or wells with an inefficient gas-oil ratio.

6. The drowning with water of any stratum or part thereof capable of producing oil or gas.

7. Underground waste however caused and whether or not defined.

8. The creation of unnecessary fire hazards.

9. The escape into the open air, from a well producing both oil and gas, or gas in excess of the amount which is necessary in the efficient drilling or operation of the well.

10. The use of gas for the manufacture of carbon black.

11. Permitting gas produced from a gas well to escape into the air.

Engineers Corps Explains Flood-Control Studies

The oil and gas industry will be interested in the following news release from the U. S. Engineer office, Tulsa:

An economic survey of the upper reaches of the South Canadian River in New Mexico, Texas and Oklahoma, and the entire length of the North Canadian River, in relation to the control of floods on those streams and their principal tributaries, is being made by the U. S. Engineer Office, Tulsa.

Under congressional authority (Public, No. 406, 75th Congress, 1st sess.—North Canadian River; and resolution of committee on rivers and harbors of House of Representatives, adopted June 15, 1938—South Canadian River), the secretary of war is directed to make surveys relative to the control of floods on these streams.

A careful survey is being made of all property located within the limits of the flood plains to ascertain the probable benefits that might accrue from protective works. Owners and lessees are being interviewed as to the general vulnerability of their property to floods, and the value of structures, equipment, stocks, raw materials, and other items which may be directly or indirectly affected by flood conditions will be carefully estimated. Experienced losses will be secured wherever possible, and these will be converted to estimates of damage that would be suffered by these properties if these experienced floods were repeated under present-day property development and conditions.

The information secured from this survey will be treated as strictly confidential, and will be so combined in the report data that no individual property valuations or losses will be revealed. The data will be used solely for the purpose of developing the probable benefits which might be derived from any proposed flood-control works.

The survey is being conducted by regular employes of the U. S. Engineer Office at Tulsa, and no additional employment of personnel is contemplated.

Witnesses Refute Charges

(Continued from Page 25)

Answer: "There is nothing in the Government's proposal for unitization which cannot be attained under the laws of New Mexico and other states."

Another two-fisted defense of the practice of the states of tying in conservation with price stabilization was made by Andrew F. Schoeppel, chairman of the Kansas Corporation Commission, who declared it a happy circumstance that measures calculated to prevent waste at the same time contribute to economic stability, but the mere fact that the rate of production is decreased to prevent physical waste does not indicate that the amount of oil actually produced would bear any relation to consumptive demand. Since the Burrton pool had been cited as an example of waste, Mr. Schoeppel told the committee that on two different occasions the state hired the Bureau of Mines to study this pool and recommend conservation measures, but the bureau was unable to suggest a solution and finally the state solved the problem itself. He declared this demonstrates that the federal Government cannot prevent waste as efficiently as the states.

The gas-oil ratio in New Mexico and reasons for the August shutdown formed the basis of severe committee questioning of A. Andreas, state geologist and member of the Oil Conservation Commission of New Mexico. Mr. Andreas contended the state's conservation record is better than that of the federal lands within New Mexico, and suggested the committee enact legislation giving New Mexico power to enforce conservation measures on public lands, if the sole interest is to enhance conservation of oil.

During questioning by the committee, Mr. Andreas declared the federal Government never established a gas-oil ratio on its own lands in New Mexico and the state took the initiative. The commission asked for the reduction of a gas-oil ratio on federal lands on one or two occasions but was told that this subject was not in its province.

Most of the questioning was done by Rep. Charles A. Wolverton, of New Jersey, who throughout the hearings has been particularly interested in the August shutdowns and the relationship of state conservation to the regulation of crude-oil prices. Some of this questioning was substantially as follows:

Wolverton: "Why did it take New Mexico 3 years to establish a gas-oil ratio but only 24 hours to shut down in August?"

Andreas: "It was naturally a question of price. The posted price of crude had been cut 20 cents a barrel, creating an emergency."

Wolverton: "When did you discover the emergency, at the Oklahoma City meeting of the compact commission?"

Andreas: "The cut was posted shortly before I left for Oklahoma City but the emergency was discussed at the compact meeting and it was decided it would be best to shut in the wells to prevent production below cost. New Mexico acted independently in ordering a shutdown. We hoped this action would have an effect on the price cut."

Wolverton: "Then limitation on production does affect prices?"

Andreas: "Yes."

Wolverton: "Then states are more interested in stabilization of prices than in conservation?"

Andreas: "The fact is that overproduction is waste."

Wolverton: "When you ordered the shutdown what evidence did you have of overproduction?"

Andreas: "The price cut showed that there was excess production."

Wolverton: "Was the overproduction so great that all wells had to be shut down completely?"

Andreas: "We hoped that this action would restore the price cut."

Wolverton: "Where does the consumer get off under such a situation? You had no figures as to overproduction."

Andreas: "Our primary consideration is for the producer. He can't be expected to produce below cost."

Wolverton: "You just assumed that the price cut was evidence of overproduction?"

Andreas: "Yes. That was the policy of our commission before the August shutdown."

Wolverton: "It appears that you are using conservation as a cloak to cover price stabilization."

Andreas: "The two things are the same."

Wolverton: "Conservation appears to be secondary to price."

Andreas: "No, they are interwoven."

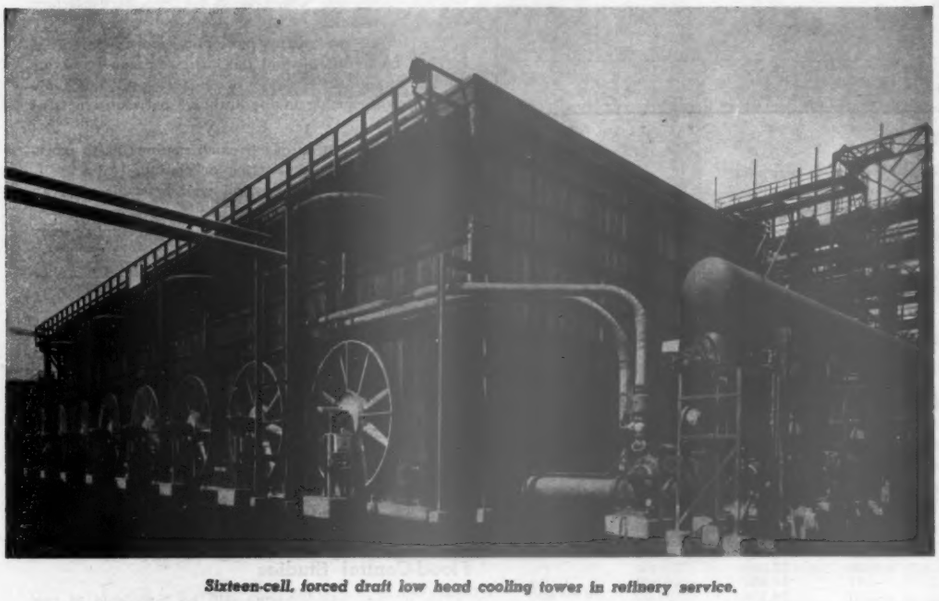
Wolverton: "The August shutdown was not recommended by Bureau of Mines' monthly forecasts of demand. What caused you to lose confidence in these forecasts?"

Andreas: "The price cut."

Wolverton: "The Bureau of Mines presumably has knowledge of supply and demand factors, but you did not consult the bureau before ordering a shutdown. It appears that the shutdown was ordered for not other reason than to save the price of crude."

Andreas: "That is right. Under the New Mexico law it was our duty to shut down the wells when we have evidence of overproduction, and a reduction in price is evidence of overproduction. We had nothing else to do under our law."

Committee members thanked Mr. Andreas for his frankness in answering questions regarding the August shutdown and other matters.



Sixteen-cell, forced draft low head cooling tower in refinery service.

MECHANICAL DRAFT
COOLING TOWERS

Maximum production in many departments depends upon full cooling capacity regardless of weather conditions. Mechanical draft cooling towers provide adequate cooling regardless of calms, heat or high humidity. Definitely controlled draft is the secret of maintained cooling tower service.

The tower shown is in a prominent petroleum refinery and cools 960,000 gallons per hour. It has 16 cells, is of California redwood and is served by eight-blade Axial Flow fans of Dowmetal. Foster Wheeler low-head design reduces water pumping costs to a minimum, and combines highest grade materials with most up-to-date engineering to produce effective, year-round performance.

FOSTER WHEELER CORPORATION, 165 Broadway, New York

FOSTER WHEELER

TANKER SHIPMENTS OF CRUDE OIL AND REFINED PRODUCTS AT GULF COAST PORTS, 1939

District—	January	February	March	April	May	June	July	August	September	October	November	December	Total
Sabine district:													
Coastwise crude	7,402,037	4,843,558	6,587,071	6,060,314	6,457,400	6,632,393	6,844,186	6,099,389	6,618,369	7,553,306	7,755,605	6,994,957	79,848,585
Coastwise refined products	8,563,362	8,957,175	8,076,530	8,774,806	10,117,226	9,717,985	9,594,497	10,365,017	9,154,687	9,741,774	9,215,608	9,582,720	111,861,387
Export crude	727,325	1,204,387	822,272	1,474,519	1,933,321	600,920	1,208,873	2,261,406	1,316,267	861,140	534,563	431,065	13,376,038
Export refined products	1,625,722	1,733,738	2,111,378	1,515,103	2,116,000	1,716,194	1,704,125	2,417,729	1,371,029	1,400,686	935,852	1,851,577	20,499,133
Total district	18,318,446	16,738,838	17,597,251	17,824,742	20,623,947	18,667,492	19,351,681	21,143,541	18,460,352	19,556,906	18,441,628	18,860,319	225,585,143
*Corpus Christi—Harbor Island district:													
Coastwise crude	4,062,643	3,112,522	3,331,627	2,827,534	3,273,552	2,852,659	3,320,806	3,028,860	2,945,131	4,024,353	2,907,059	4,124,792	39,811,538
Coastwise refined products	549,963	407,503	628,141	247,335	669,393	493,376	988,934	918,836	736,675	637,952	684,859	526,969	7,489,936
Export crude	1,067,054	1,284,482	1,172,057	1,359,223	1,649,757	908,843	1,218,106	1,167,344	1,271,756	950,519	525,029	951,551	13,525,721
Export refined products	492,452	577,588	860,861	965,403	1,029,265	873,367	801,668	965,884	511,320	630,390	726,557	590,502	9,025,257
Total district	6,172,112	5,382,095	5,992,686	5,399,495	6,621,967	5,128,245	6,329,514	6,080,924	5,464,882	6,243,214	4,843,504	6,193,814	69,852,452
Houston-Texas City district:													
Coastwise crude	2,912,849	2,558,265	2,714,194	2,408,316	2,720,861	2,621,540	3,463,009	3,236,904	2,236,853	2,761,172	2,733,841	3,152,974	33,520,778
Coastwise refined	8,262,136	5,932,777	7,640,865	6,961,184	7,616,640	7,218,474	6,443,941	6,484,650	6,642,284	8,009,510	7,716,335	9,105,057	88,033,853
Export crude	650,435	524,899	451,131	1,152,099	1,312,221	1,190,132	2,389,629	679,321	304,466	685,144	639,709	706,868	10,686,054
Export refined	1,639,784	1,582,844	2,178,301	1,719,344	2,095,425	1,880,354	1,989,045	1,930,525	1,352,632	1,296,955	1,248,727	677,762	19,591,698
Total district	13,465,204	10,598,785	12,984,491	12,240,943	13,745,147	12,910,500	14,285,624	12,331,400	10,536,235	12,752,781	12,338,612	13,642,661	151,832,383
Mississippi River district:													
Coastwise crude	480,987	719,138	828,977	818,537	946,204	947,554	789,357	895,205	1,160,401	1,001,669	631,345	1,165,269	10,384,643
Coastwise refined	1,799,246	1,460,801	1,385,293	1,391,067	930,356	949,422	1,221,899	1,295,956	1,413,858	948,659	1,571,809	1,750,465	16,118,831
Export crude	.....	36,582	42,496	.....	172,895	94,564	623,168	277,118	201,254	489,699	183,519	90,093	2,211,388
Export refined	620,790	407,698	288,479	568,670	582,297	353,571	315,795	533,735	455,228	441,065	309,514	345,875	5,222,717
Total district	2,901,023	2,624,219	2,545,245	2,778,274	2,631,752	2,345,111	2,950,219	3,002,014	3,230,741	2,881,092	2,696,187	3,351,702	33,937,579

*Includes Port Isabel (Valley district).

Gulf Coast Export Shipments Reach 3-Year Low

(Continued from Page 33)

crude declined from a peak of 5,439,776 bbl. in July to a low of 1,882,820 bbl. in November, while shipments of refined products had a peak of 5,847,873 bbl. in August and a low of only 3,220,650 bbl. in November.

While exports decreased, coastwise movement increased, more than offsetting the drop in foreign trade. Total shipments of crude and refined products from coastal ports amounted to 481,207,557 bbl. This was 17,046,759 bbl. greater than 1938. It still lacked 18,754,334 bbl. of equaling shipments during the peak year of 1937.

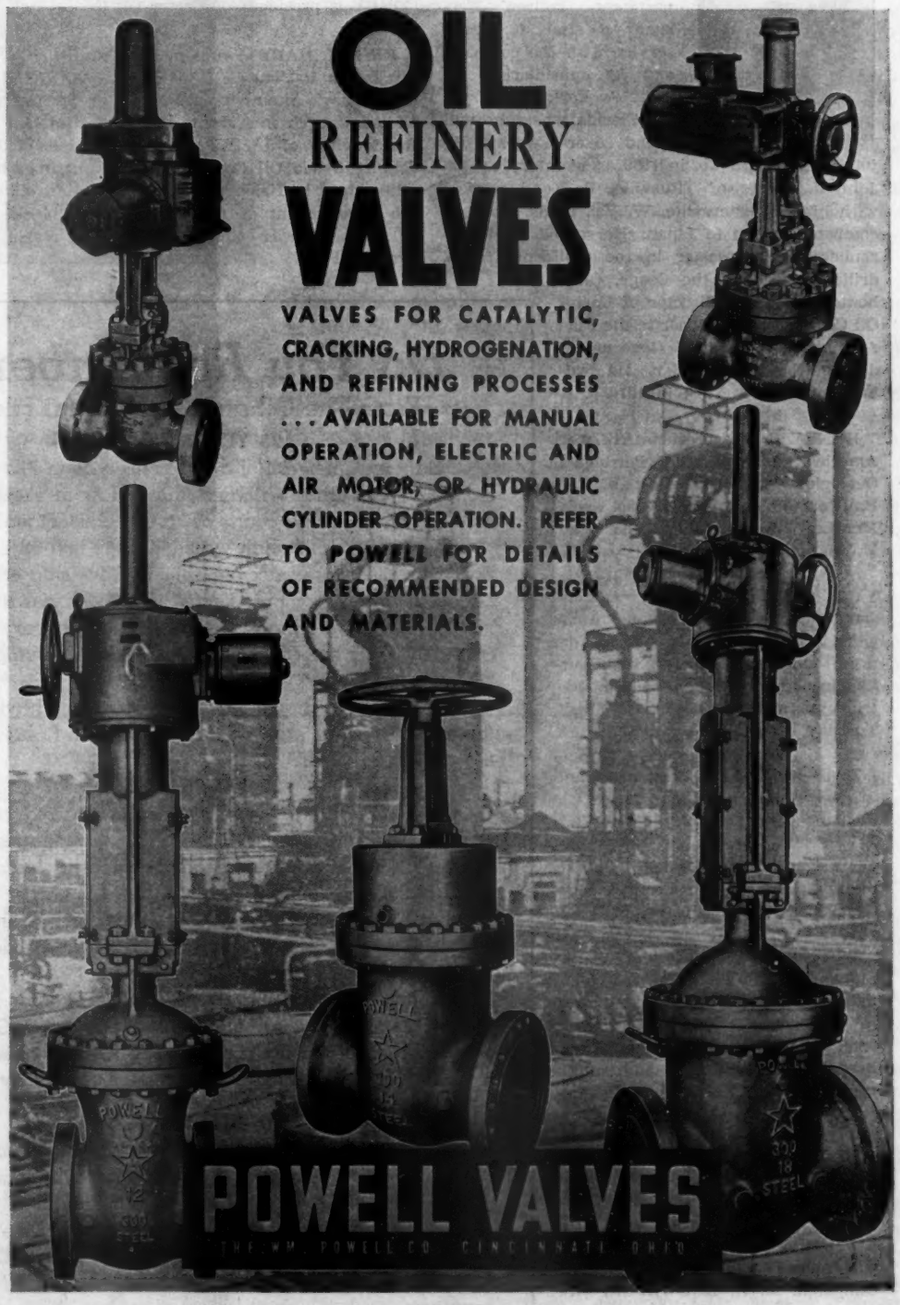
Coastwise shipments of crude totaled 163,565,544 bbl., an increase of 3,474,743 bbl. over 1938; coastwise shipments of refined products totaled 223,504,007 bbl., an increase of 17,643,383 bbl. Total coastwise shipments increased 21,118,126 bbl. over 1938.

With the increase in coastwise shipments, the volume of refined products, including both coastwise and export, was greater during 1939 than in any previous year, exceeding 1938 by 15,875,727 bbl. and the 1937 peak by 5,369,682 bbl. This is a reflection of the extensive refinery expansion program on the Gulf Coast during the past several years. Included in this expansion have been two entirely new major refineries by companies which previously shipped all their crude to eastern plants. These companies now process the crude on the Gulf Coast and ship the products.

Coastwise shipments of refined products during December were the greatest for any single month on record, totaling 20,965,211 bbl. Coastwise shipments of crude during December exceeded those of any single month since December 1937.

The increased coastwise movement of refined products is partly a reflection of the unprecedented demand for fuel and burning oils on the Atlantic seaboard. Shipments of these products have reached new high records. A heavy movement of lubricating oils also has been reported. While new gasoline demand has been inactive, and stocks have backed up on the Gulf Coast, movement on contract and to established outlets has continued steady.

Among the export shipments since the war opened there was not a single record of any oil going to Germany. The greater part of the shipments went to French ports, with Italian ports second, Swedish ports third, and English ports fourth. It is considered probable some of the shipments to Italy found, or will eventually find, their way to Germany.


OIL
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VALVES FOR CATALYTIC, CRACKING, HYDROGENATION, AND REFINING PROCESSES ... AVAILABLE FOR MANUAL OPERATION, ELECTRIC AND AIR MOTOR, OR HYDRAULIC CYLINDER OPERATION. REFER TO POWELL FOR DETAILS OF RECOMMENDED DESIGN AND MATERIALS.
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Personal Paragraphs

E. P. (NATE) SALISBURY, chief statistician of the Standard Oil Co. of New Jersey producing department, retired February 6 after 40 years' service with the company and its subsidiaries. He left New York February 7 for Florida where he will spend several weeks. He joined Carter Oil Co. in 1899 as secretary to Col. John J. Carter of Titusville, Pa., and worked with him in Sistersville, W. Va., fields, later accompanying him to Japan. He served as stenographer and paymaster in the California fields, drilled a well in the Osage, Oklahoma, and was a director of Carter Oil Co., statistical adviser to the Fuel Administration of the Government during the World War. He was brought to New York in 1916.

HENRY LEY, president of the American Association of Petroleum Geologists, was the guest of the Houston Geological Society last week. Mr. Ley discussed "Appraisal and Evaluation Background."

RAY C. JOHNSON, director of Consumers Cooperative, Associated, Amarillo, Tex., delivered an address on taxes and taxation before the Panhandle chapter of the American Petroleum Institute at Pampa, Tex., Tuesday evening.

L. F. McCOLLUM, vice president in charge of exploration, Carter Oil Co., together with J. R. McWILLIAMS, vice president, and W. K. LINK, geologist, of Standard Oil Co. of Louisiana, are inspecting company operations in Mississippi.

W. T. HOLLIDAY, president of the Standard Oil Co. of Ohio, was chairman of arrangements for the dinner in Cleveland, at which 30 district "modern pioneers" were honored on the occasion of the 150th anniversary of the founding of the patent office.

D. M. SACHS, president of the National Transit Co., was elected president of the Oil City, Pa., Community Fund Association, and WILLIAM A. MORCK, of Morck Oil Co., was named chairman of the 1940 campaign. M. A. BREWSTER, vice president and treasurer of Pennzoil Co., is secretary of the association.

R. M. HURT, in charge of operations for the International Petroleum Co., Ltd., in Ecuador, South America, and Mrs. Hurt are visiting her parents, Mr. and Mrs. J. J. Conry, in Tulsa. MR. CONRY is president of Carter Oil Co.

JOHN F. HARDY, of Benedum-Trees Oil Co. of Pittsburgh, Pa., and GERALDINE LYNDON HILL of Calgary, Alta., were married in St. George United Church in Toronto, Canada. Miss Hill is the daughter of JAMES I. HILL, president of the Empire Crude Oil Co., Ltd. Mr. Hardy met his wife while in Calgary when the deal involving the development of the Pouce Coupe block of 191,000 acres was completed. They will reside in Crafton, Pa.

JOSEPH E. MORERO, chief geologist for Skelly Oil Co., Tulsa, is visiting the company's West Texas and New Mexico district office at Midland, Tex. Several years ago Mr. Morero was district geologist at both San Angelo and at Midland.

OSCAR MARYATT, of Hollywood, Calif., was a business visitor in Tulsa and Kansas points last week. His firm, Maryatt & Hackathorn, of Caney, Kans., has started a development program on its leases in Rogers County, Oklahoma, and Montgomery County, Kansas.

A. C. HORNADY, district geologist for Phillips Petroleum Co. at Wichita Falls, Tex., and D. J. MacNEIL, district geologist for Shell Oil Co., Inc., also of Wichita Falls, were the principal speakers at the monthly meeting of the North Texas Geological Society at Wichita Falls last Thursday evening.

M. E. ORELUP, Oklahoma Natural Gas Co., took part in a symposium on "Sales Policies and Plans That Produce Gas-Engine Business" at the southern-southwestern regional sales conference and Southern Gas Association convention at Hot Springs, Ark., this week. H. C. PRICE, of H. C. Price Co., discussed "Present-Day Welding Methods," and L. S. REAGAN, Webster Engineering Co., Tulsa, spoke on "Application of Safety Devices and Necessity for Their Use on Heat and Power-Type Boilers."

R. A. STEHR, chief geologist with Seaboard Oil Co., was in Shreveport, La., last week on business.

HENRY L. HUMMEL, geologist, Bunte Oil & Gas Co., Houston, Tex., has returned from a visit to his former home in Nebraska.

R. D. RISSER, division manager with Shell Oil Co., Inc., at Kilgore, Tex., is spending 3 weeks in a special training course in Tulsa.

FRED A. SCHELL, JR., division engineer with Stanolind Oil & Gas Co., in East Texas, is spending some time in the Wichita Falls, Tex., area studying drilling operations.

L. ROY CARTER, with the tax department of Sun Oil Co., Dallas, Tex., has announced that March 1 he will enter private business in Dallas as consultant on ad valorem taxation.

CAPT. LARKIN CRAWFORD, well-known Pacific Coast mariner, has been appointed port captain at Los Angeles Harbor by Richfield Oil Corp. succeeding WILLIAM CHISHOLM who recently retired. P. C. LAMB is Richfield's manager of the marine department.

W. W. BAKER, of Tulsa, vice president of Sinclair Prairie Oil Co., in charge of the natural-gasoline department, has been made head of a new division at Corpus Christi, Tex., where he will be located. The new natural-gasoline plant at Corpus Christi, upon which construction was started on Thanksgiving, began operating February 6.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

Oklahoma's new oil and gas conservation law has been signed by Governor Williams and is now in effect, but will soon be tested in the courts as to its constitutionality.

An Illinois oil historian writes that the first oil pool in Illinois was discovered accidentally in Township 8n-5w, near Litchfield in Montgomery County, in 1886. It was abandoned in 1904, after it had produced 6,576 bbl. in 8 years.

Al E. Watts has relinquished his duties as umpire in the Cushing field.

Dr. George W. Brown, who is credited with having drilled the first oil well in Kansas, died recently in Rockford, Ill., at the age of 95 years.

20 YEARS AGO

The U. S. Indian Department disapproves of Jackson Barnett's gifts of $1,500,000 to hospitals, orphanages and missionary societies. Barnett is an incompetent Indian, and a ward of the Government.

Gulf Coast crude is posted at $2 per barrel, the highest price it has ever commanded. Pennsylvania Grade crude is posted at $5.65 per barrel.

The first Standard Oil stock to be listed on the New York Stock Exchange is that of the Atlantic Refining Co.

A. W. Ambrose has been made superintendent of the U. S. Bureau of Mines experiment station in Bartlesville, Okla.

10 YEARS AGO

E. T. Johnson, 95, who had been an oil producer since 1875, dies in Bradford, Pa. He was one of the organizers of the Anchor Oil Co. and later the Test Oil Co.

A. W. Peake has resigned as president of the Dixie Oil Co. to head another division of the Standard Oil Co. of Indiana. Frank O. Prior succeeds him as head of the Dixie company.

JACK HEALY, independent operator of Abilene, Tex., is leaving this week for an extended trip to Florida.

WILLIAM PIKE, geologist with Shell Oil Co., Inc., has been transferred from East Texas to Shreveport, La.

T. O. GRISELL, sales manager of Kendall Refining Co., Bradford, Pa., exhibited a number of oil paintings at the Bradford Current Events Club art exhibit.

DANIEL T. PIERCE, assistant to the chairman of Consolidated Oil Corp., returned to New York last Wednesday after an inspection trip to Corpus Christi, Tex.

DR. BLAINE B. WESCOTT, in the research department of Gulf Oil Corp. at Pittsburgh, Pa., was a visitor to the company's offices at Houston, Tex., the past week.

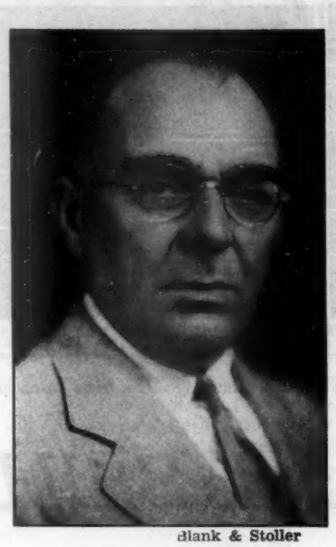
W. S. S. RODGERS, president of the Texas Co., was married February 3 at Palm Beach, Fla., to MISS ANNE MARIE MORALES, daughter of Mrs. Chester M. Stratton of Brooklyn and Orlando Morales of Havana, Cuba.

C. E. WEBBER, of Humble Oil & Refining Co., Houston, Tex., addressed the monthly meeting of the Gulf Coast section of the American Institute of Mining and Metallurgical Engineers last week. Mr. Webber discussed "Metering High-Pressure Gas."

RICHARD SACHSE, director of natural resources; WALTER F. DEXTER, NATE MILNOR, WILLIAM B. PARKER, FRANK W. CLARK and SAMUEL C. MAY have been appointed members of the California State Conservation Committee which was set up by the 1939 legislature.

Takes Time for Hobbies

One reason N. H. Weber, vice president of Pure Oil Co. and serving his first term as president of the National Petroleum Association, is still going strong may be that he takes time out for his hobbies. Woodworking, for instance. He has a well-equipped shop in his home in Winnetka, Ill., and recently completed an inlaid coffee table containing more than 5,000 pieces. Then there's hunting. He is active in the Davy Crockett Club. And fishing. He enjoys swapping tall yarns with fellow members of the Mud Bottom Club.



Blank & Stoller

N. H. WEBER

Mr. Weber was born in Dempseytown, Pa. He graduated from the high school there, but remained a farm boy till 1890, when he got a job as a railroad freight clerk in Titusville, Pa. He was cashier when he resigned 9 years later to enter the oil business as bookkeeper for Producers & Refiners Pipe Line Co. He went to Pittsburgh, Pa., when the offices of the company were moved to that city, and in 1901 he was transferred to Philadelphia as bookkeeper for Pure Oil Co. of New Jersey. A year later he was appointed secretary, and in 1912 the duties of treasurer were added. He was elected a director in 1916, and the next year he was advanced to vice president and general manager.

When the company was sold to Ohio Cities Gas Co. in 1917 Mr. Weber remained as vice president and director. In 1922 the name was changed to Pure Oil Co. of Ohio, and he retained the post of vice president, which he now holds.

D. P. DONAHUE, petroleum engineer with Sun Oil Co., has been transferred from Freer to East Texas.

HARRY F. SINCLAIR, chairman of Consolidated Oil Corp., left New York February 7 for Los Angeles, Calif.

GEORGE SCHNEIDER, district geologist with Texas Co., Shreveport, La., has returned from a business trip to New York.

W. L. CARSS, superintendent land department, Bentex Oil Co., Houston, Tex., has resigned to engage in the oil business independently.

A. E. BOOTH, of M. D. Booth & Co., Bradford, Pa., has been appointed a member of the production advisory committee of the Pennsylvania Grade Crude Oil Association.

W. N. LITTLE, petroleum engineer with Tide Water Associated Oil Co., Kilgore, Tex., will present a paper on paraffin problems in East Texas at the East Texas chapter meeting of the A.P.I., tentatively scheduled for February 20.

SAMUEL MESSER, vice president of Quaker State Oil Refining Corp., has been reelected chairman of the Associated Petroleum Industries of Pennsylvania. W. A. ZEHRUNG, president of Pennzoil Co., replaced CHARLES L. SUHR on the committee.

W. B. ISAACKS, general superintendent, Fohs Oil Co., Houston, Tex., has resigned to devote full time to his personal oil interests. He will open offices in New Orleans. He is being succeeded by W. D. CARLETON, production superintendent, Lake Charles area. RALPH NEWCOMER has been appointed district superintendent at Houma, La.

LOUIS CAMPBELL, of the Magnolia Petroleum Co. in Oklahoma, is recovering from an illness that followed an accident some weeks ago. He is in an Oklahoma City hospital.

T. R. VAN KIRK, representative of Brendel Oil Co., Pittsburgh, Pa., accompanied by Mrs. Van Kirk, is making a tour of inspection of the company's oil and mining interests throughout the southwestern and western parts of the United States. They are at present spending several weeks in San Angelo, Tex., and plan next to go to Boise, Idaho.

PRES. L. L. TONKIN, of the Hope Natural Gas Co., announced transfer of headquarters of the company from Pittsburgh, Pa., to Clarksburg, W. Va. Those transferred include the vice president and treasurer, J. C. CHISLER; HUGH LIVINGSTON, JESSE C. CROSS, S. E. W. BURNSIDE, J. C. LINDSAY, C. W. LUEBBE, FRED DEMMLER, E. H. TOLLENSON, BURTON BRIDGE, FRANK KRIDER, C. WALLACE SNYDER, GEORGE KINLEY, CHESTER STONE, JOHN W. SCHOTT and CHARLES G. MOOREHEAD.

A. A. LACAZZETTE, assistant to E. A. HOLBEIN, vice president of Standard Oil Co. of New Jersey, is spending some time in Shreveport, La.

DR. R. A. DALY, of Harvard University, delivered an address before the Dallas Petroleum Geological Society last Thursday evening at Hyer Hall on the campus of Southern Methodist University in Dallas, Tex.

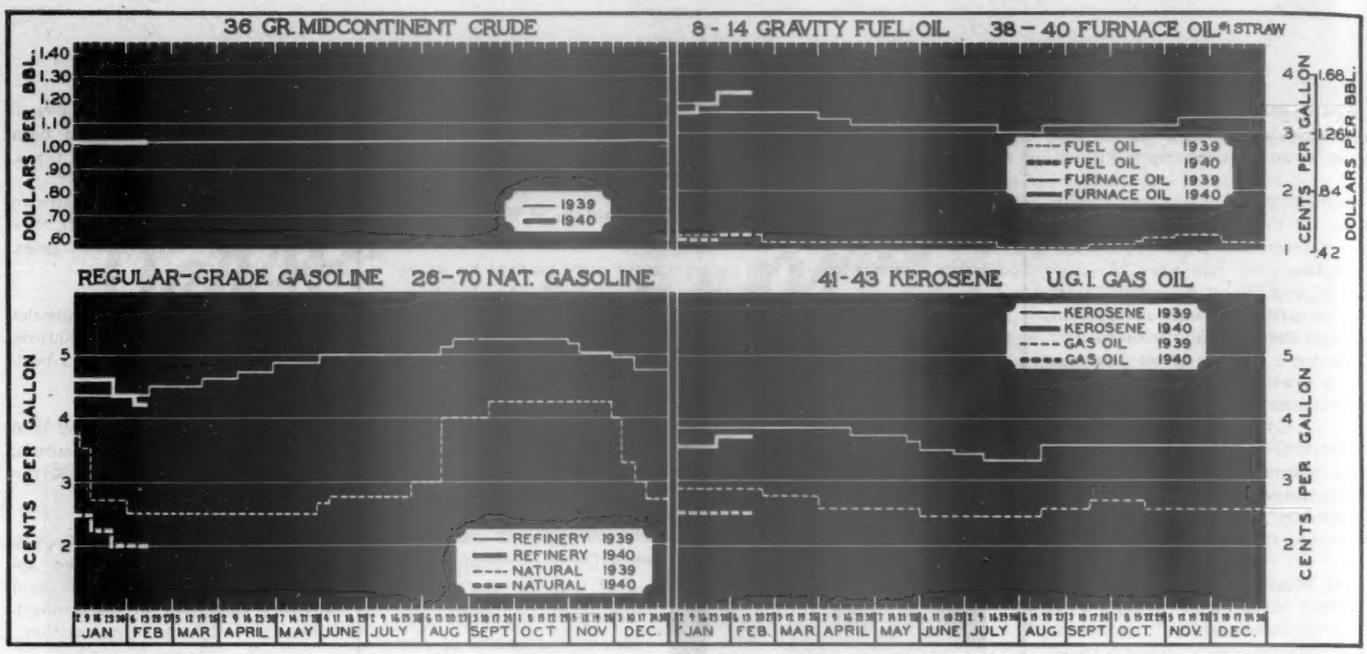
J. C. EDWARDS, manager of International Refining Co. at Sunburst, Mont., has been promoted to a new position in the Texas Co. at Houston. H. S. McCRAY, formerly of Port Neches, Tex., has been named to succeed Mr. Edwards, who has been with the Texas Co. since 1931.

COL. T. H. BARTON, president of Lion Oil Refining Co., El Dorado, Ark., has been unanimously nominated by the state committee for national Democratic committeeman from Arkansas. Colonel Barton recently resigned as president of the Arkansas Livestock Association and was chosen to fill the newly created post of chairman of the executive committee.

H. A. McKIM, of San Francisco, Calif., assistant manager of motor transport for Standard Oil Co., is spending some time in Los Angeles on company business.

WILLIAM REUEL CHEDSEY, director of Missouri School of Mines and Metallurgy at Rolla, has been elected chairman of the Mineral Industry Education Division of the American Institute of Mining and Metallurgical Engineers. He succeeds Francis A. Thompson, president of the Montana School of Mines at Butte.

Shifts: LEE HAYS, engineer, Bert Fields, from Harrisburg, Ill., to Centralia, Ill.; FRANCIS G. PHILLIPS, engineer Shell Oil Co., Inc., from Donaldsonville, La., to White Castle, La.; L. B. HOWARD, engineer Republic Production Co., from DeQuincy, La., to Silsbee, Tex.; BOB O. BIRD, superintendent Phillips Petroleum Co., from Duncan, Okla., to Guthrie, Okla.; WILLIAM S. WALLS, superintendent Phillips Petroleum Co., from Houston, Tex., to Bartlesville, Okla.; W. I. INGHAM, geologist Mid-Continent Petroleum Corp., from Greenville, Ky., to Tulsa.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Gasoline and Naturals Still Lagging in Lifeless Group 3 Refinery Market

By T. F. SMILEY

FUEL oils, kerosene, lubricants, and wax were acting fairly well in the Group 3 territory this week, but motor fuel and natural gasoline were under water. The market generally lacked life.

Mid-Continent refiners added 270,000 bbl. of gasoline to their stocks in the week ending February 3, a gain of 2.7 per cent. This was a higher rate of increase than that recorded by stocks in the country at large, which rose 1,423,000 bbl., a gain of slightly more than 2 per cent. Thus it becomes apparent that Mid-Continent refiners were helping all they could to add to the huge overaccumulation of gasoline. The Gulf Coast Refiners Association in its report for that week showed a decline of 63,837 bbl. in unsold gasoline.

Underselling Reported

Concessions from published prices were reported to be obtainable in the Group 3 spot market this week. Some jobbers were said to be getting regular-grade gasoline at 4⅛ cents. Third-grade material (62-octane and below) was said to be changing hands at 3¼ cents, and in a few cases at an eighth under that price, but the quality of the fuel going at the extremely low figure was understood to be doubtful.

Group 3 refiners say their outlook would be improved materially if they got relief from freight rates which exclude them from business they once had in parts of the Middle West. Before the existing schedule of rates went into effect Oklahoma refiners sold much of their output in Indiana. That region is virtually controlled now by Illinois refiners, who not only have the advantage of lower freight rates, but also have ready access to cheap crude from Illinois fields. With the limitations imposed by freight rates, Oklahoma refiners face intense competition in a restricted area.

There was no sign of the spring pickup in gasoline prices which refiners are accustomed to see at this season, though some were refusing to sell at the current low prices and were storing instead, at the same time cutting down their runs to stills.

The practice of stabilizing natural gasoline was being adopted to an increasing extent in the past week. Various reasons for it were apparent. A potent one was the fact that such demand as existed was for the lower vapor pressures. On the part of manufacturers who have stabilization equipment there was entire willingness to utilize the process. Among advantages gained is a reduction in the volume of material to be disposed of in a sluggish market. Furthermore, the likelihood of evaporation losses is lessened in case storage should be necessary. Some manufacturers too are not equipped to store large quantities of 26-70, though able to take care of stabilized grades. At this season there is a substantial demand for butane separated in the stabilization process.

Natural Gasoline Holding

Just enough natural was moving into the market this week to relieve the worst cases of overaccumulation and to keep quotations from burrowing any deeper. One cargo of low-pressure natural for deferred lifting was ordered in the past week, the first full-cargo order placed in a long time. Two inquiries for part cargoes were reported.

Heating oils, notwithstanding milder weather in most areas, maintained a steady tone. A few grades were not easy to get. Kerosene was holding.

Mid-Continent refiners reported lubricants were steady in spite of weakness displayed by the eastern products. There was a gratifyingly heavy domestic demand for both neutrals and bright stocks and for finished motor oils. One of the largest manufacturers said he was buying from other refiners in order to meet customer requirements. Refiners in the Middle West whose surplus stocks formerly demoralized the lube market were said to be sold up now without resorting to price cutting. Wax was vigorous at established quotations.

Refined Oil Market Barometer

Demand for heating oils less insistent in interior regions owing to warmer weather, but tightness continues in eastern and Gulf Coast areas. Kerosene, tractor fuels, and heavy industrials steady. Weakness of gasoline increases as stocks climb to new highs. Some refiners are reducing runs to stills. Lubricating oils softer in East, but prices holding in Mid-Continent.

MID-CONTINENT. Gasoline weak. No improvement in naturals. Heating oils steady.

EAST COAST. Furnace oils tight. Gasoline holding. Kerosene firm.

GULF COAST. Gasoline weaker. Fuel oils stronger. Kerosene stocks almost exhausted.

PENNSYLVANIA. Gasoline soft. Lubricating oils continue decline.

CALIFORNIA. Weakness of diesels and fuel oil continues. Gasoline and kerosene lifeless.

CHICAGO. Heating-oil demand brisk. Gasoline unsettled as stocks rise. Heavy industrial firm.

Motor Fuel Resisting Pressure on East Coast Despite Stocks

By H. STANLEY NORMAN

NEW YORK, Feb. 12.—Despite the continued pressure of mounting stocks, motor fuel on the East Coast is presenting relatively stiff resistance and, with the exception of isolated instances, is about the same from a market standpoint as at the start of January.

Motor-fuel market conditions are decidedly less optimistic on the Gulf Coast and at inland refining centers where accumulation of stocks is exerting pressure. Some of the small and some of the medium-sized refiners are pressing motor fuel on the market because of the necessity to make room for current and near-future production.

While it is apparently true that most of the currently high motor-fuel stocks are in the hands of firms well qualified from standpoints of both storage and finances to carry them until the summer draft, other refiners are in less fortunate position. The insistence that cargo buyers take part loads of motor fuel to get the desired fuel oil is growing, but even this stopgap has its limitations. The limiting factor is that the weaker refining units have sold up to the last possible barrel on light-fuel-oil stocks and on current and near-future production. Inability to bid for the present strong fuel-oil demand leaves some without a "club" with which to press gasoline stocks into other hands and the only recourse remaining is to woo buyers with lower prices.

There is no apparent curtailment in demand for light burning oil in this section or the Gulf Coast. One Gulf refiner said last week he had been offered 4½ cents per gallon for a cargo, or any reasonable part thereof, of No. 2 fuel oil. The buyer had combed the Gulf Coast market rather thoroughly in attempting to place his business at a level of 4 to 4¼ cents, without success. It had not been determined whether the higher bid succeeded in bringing out the fuel oil sought. Generally speaking, refiners without commitments on fuel oil are sold up and are not in position to offer on the spot cargo market.

As an indication of the fuel-oil-market condition on the Gulf, it was necessary for a refiner last week to hold a tanker over 2 days to make up 15,000 bbl. of a part fuel-oil cargo for coastwise movement. The Corpus Christi district is said to be completely sold up on No. 2 fuel oil.

Refiners are in general agreement that fuel-oil contracts written with consumers in the summer are likely to be short of unrestricted markets in the winter, although no definite announcement has been made so far that this practice will be eschewed in the future.

Another evil of the summer-contract system of conducting fuel-oil sales has been brought into bold relief this winter, which has been the most severe of recent years in most parts of the country. Jobber contract customers have sought immediate delivery on the entire volume of their commitments, obviously in an effort either to supply "peddlers" or in an attempt to take advantage of an ascending market. Refiners have declined to make excessively high deliveries at any one time against over-the-winter contracts, and this policy of restricted sale has given birth to exaggerated reports of shortage. Inability of "peddlers" to obtain supplies at prices slightly shaded from the market has resulted also in complaints to various local, state and federal officials.

While eastern refiners confirm that motor-fuel prices on the Gulf Coast are in an unsatisfactory position, none is willing to make an unqualified prediction of lower crude-oil prices. The political psychology in Washington is unfavorable at the moment for any substantial change in conditions.

With approximately 90 per cent of present motor-fuel stocks in the hands of large refiners, blame for any break in crude-oil prices would be squarely dumped at their doorstep.

Lubricating-oil prices in the western Pennsylvania refining district slid into lower market ground again last week. Quotations were generally down one to two points. Export business remains at a standstill and there is no apparent relief from the inability to move stocks because vessels are unavailable.

Kerosene and light-fuel-oil prices on the Atlantic seaboard are firm to stronger and will remain in that position for duration of the winter in the opinion of refiners.

Moderated temperature in New York and vicinity permitted refiners to resume barge delivery of fuel oil to many terminals on the Hudson, Long Island and similarly situated areas which had been partially isolated for 3 or 4 weeks by frozen waterways.

Gulf Coast Markets

HOUSTON, Tex., Feb. 13.—There was little change in the Gulf Coast markets the past week. The demand for fuel and burning oils continued strong with the supply at all refineries limited. Kerosene stocks were practically exhausted, placing this material in a slightly stronger position than the previous week with quotations firmer. The gasoline market continued inactive and no improvement was in sight as stocks increased. Only a small amount of material was reported moved and while no changes in quotations were reported openly most sellers are still willing to accept almost any bid within reason for material on firm orders.

Kistler Chosen President By Kansas Jobbers

WICHITA, Kans.—Fred Kistler, Coffeyville, southwestern Kansas oil jobber, was elected president of the Kansas Oil Men's Association at its twenty-sixth annual meeting here.

Mr. Kistler, who has served as a director of the association for several years, succeeds E. M. Taylor, Kinsley, who had served for 3 years.

R. O. Brown, Admire, and Ted Reinhardt, Salina, were elected directors to fill vacancies.

A. P. I. Weekly Refinery Statistics

FIGURES FOR THE WEEK ENDED FEBRUARY 10 NOT AVAILABLE DUE TO LINCOLN'S BIRTHDAY HOLIDAY

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended February 3, 1940	239,380,000 barrels
Week ended January 27, 1940	237,339,000 barrels
Week ended February 4, 1939	272,214,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Illinois Clouds Price Outlook, Says Humble President

HOUSTON, Tex.—Harry C. Wiess, president of the Humble Oil & Refining Co., said he expected crude production in Texas would be larger this year because of increased demand.

In his report at the annual stockholders' meeting he said it was generally expected conditions would be better than in 1939, although "war and worldwide disturbed conditions made forecasting hazardous."

The immediate outlook for crude prices, he said, is "clouded by the fact that production is increasing in all areas, particularly in Illinois where more than 380,000 bbl. per day are now being produced."

Arkansas Gasoline-Law Provision Ruled Out

WASHINGTON, D. C.—The Supreme Court in a 6 to 3 decision, in which three justices dissented, held unconstitutional the Arkansas law taxing Dixie Greyhound lines and other bus lines on all gasoline in excess of 20 gal. brought into the state in buses.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms.

Prices as of February 13, 1940

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline tax	Kero. Incl. tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	12.1	4.0	8.5
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	12.7	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	12.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	16.5	15.0	5.0	10.4
Minneapolis	16.5	14.5	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.0
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	13.6	12.1	4.0	7.6
Grand Rapids	13.9	11.7	4.0	9.7
Saginaw	14.8	13.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	14.3	5.0	†10.0
South Bend	16.8	15.3	5.0	†10.0
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.0	4.0	7.9
Wichita, Kans.	13.3	11.1	4.0	7.0

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective December 12, 1939, f.o.b. Chicago tank-wagon prices: Standard heater oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5.5 cents; 400 gal. and over, 4.5 cents. Stanolex Grade B, 1-799 gal., 5.25 cents; 800 gal. and over, 4.25 cents. Stanolex Grade C, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline Cons'r tank wag.	Gasoline Divided dlr.	Gasoline Incl. tax	Kero. tank wag.
Ohio points	15.5	14.5	5.0	*13.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
Atl'tic City, N. J.	11.6	12.7	4.0	8.1
Newark	11.6	12.7	4.0	8.1
Annapolis, Md.	13.35	14.35	5.0	9.5
Baltimore	12.75	13.75	5.0	7.5
Cumberland	14.15	16.15	5.0	10.0
Wash'gton, D. C.	11.00	12.0	3.0	9.5
Danville, Va.	14.95	17.45	6.0	11.5
Norfolk	13.75	16.25	6.0	11.0
Petersburg	14.05	16.55	6.0	11.7
Richmond	14.05	16.55	6.0	11.0
Roanoke	15.25	17.75	6.0	11.5
Charles'n, W. Va.	14.55	17.05	6.0	12.6
Parkersburg	13.85	15.35	6.0	11.2
Wheeling	14.85	16.75	6.0	12.2
Charlotte, N. C.	16.90	18.40	7.0	11.8
Hickory	17.45	18.95	7.0	12.3
Mt. Airy	17.30	18.80	7.0	12.2
Raleigh	16.65	18.15	7.0	11.5
Salisbury	16.95	18.45	7.0	11.9
Charleston, S. C.	14.75	17.25	7.0	6.5
Columbia	15.60	18.10	7.0	11.5
Spartanburg	16.30	18.80	7.0	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gal. or more under contract (contract not necessary in Baltimore), except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r tank wag.	Gasoline Net dlr.	Gasoline Incl. tax	Kero. tank wag.
Atlanta, Ga.	17.0	17.0	7.0	10.0
Augusta	17.5	17.5	7.0	10.0
Macon	16.5	16.5	7.0	10.5
Savannah	16.5	16.5	7.0	9.0
Birmingham, Ala.	18.5	18.5	8.0	9.0
Mobline	18.5	18.5	9.0	8.0
Montgomery	19.5	19.5	9.0	11.0
Jackson, Miss.	16.0	16.0	7.0	10.0
Vicksburg	16.5	16.5	7.0	9.5
Jacksonville, Fla.	17.0	17.0	8.0	8.0
Miami	17.0	17.0	8.0	8.0
Pensacola	18.5	18.5	9.0	8.5
*Tampa	21.0	18.0	8.0	8.0
Lexington	16.5	16.5	6.0	10.0
Covington	15.0	15.0	6.0	9.5
Louisville	15.5	15.5	6.0	9.0
Paducah	15.5	15.5	6.0	9.0

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

*Temporary discounts to tank-wagon consumers in Tampa 3 cents per gallon below consumer tank-wagon price on Crown gasoline.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
Albany	12.6	14.2	5.0	8.3
*Met. N. Y.: Manhat, Bronx, Queens, Br'klyn., Staten Island	12.7	13.7	5.0	8.5
Buffalo	13.1	14.5	5.0	7.9
Rochester	13.3	15.0	5.0	8.5
Syracuse	13.2	14.5	5.0	8.8
Portland, Me.	12.6	14.4	5.0	8.5
Manchester, N. H.	13.3	15.3	5.0	8.9
Burlington, Vt.	13.1	15.0	5.0	8.7
Boston, Mass.	11.5	13.0	4.0	8.5
Worcester	12.1	13.5	4.0	8.0
Hartford, Conn.	11.9	13.3	4.0	8.4
New Haven	11.8	12.8	4.0	7.5
Providence, R. I.	11.5	13.3	4.0	8.5

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and New England points for tank-wagon delivery to the following: Annual purchases 10,000 gal. and under, tank-car price plus 2 cents per gallon; annual purchases 10,000 gal. up to 50,000 gal., tank-car price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gal., tank-car price plus 1 cent per gallon; annual purchases 200,000 gal. and over, tank-car price plus ½ cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gal. receive a discount of ½ cent per gallon.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.5	14.0	5.0	10.0
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	13.0	14.5	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	12.5	15.0	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.		13.5	5.0	10.5
Wilmington		14.0	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

*Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank truck	Gasoline Serv. sta.	Gasoline Incl. tax	Kero. tank wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes 0.25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag.
Denver, Colo.	14.0	...	5.0	11.5
Grand Junction	17.5	...	5.0	15.0
Pueblo	15.0	...	5.0	9.0
Casper, Wyo.	17.5	...	5.0	11.5
Cheyenne	15.5	...	5.0	13.0
Billings, Mont.	18.5	...	6.0	13.0
Butte	20.0	...	6.0	15.5
Great Falls	19.5	...	6.0	15.5
Helena	20.5	...	6.0	15.5
Salt Lake, Utah	15.5	15.5	5.0	16.0
Boise, Idaho	21.1	21.1	6.0	18.0
Twin Falls	21.1	21.1	6.0	18.0
Albu'que, N. M.	14.5		6.5	10.0
Roswell	16.0	16.0	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons'r tank car	Gasoline Dlr. tank wag.	Gasoline Incl. tax	Kero. tank wag.
New Orleans, La.	15.25	17.75	8.0	†11.0
Baton Rouge	15.25	17.75	8.0	‡10.5
Alexandria	15.25	17.75	8.0	‡12.5
Lafayette	15.00	18.00	8.0	‡11.0
Lake Charles	15.25	17.75	8.0	‡12.5
Shreveport	14.00	16.50	8.0	‡11.0
Knoxville, Tenn.	18.00	20.50	8.0	13.0
Memphis	16.00	18.50	8.0	11.0
Chattanooga	17.50	20.00	8.0	12.0
Nashville	17.00	17.50	8.0	11.0
Bristol	18.25	17.75	8.0	13.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 9.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline tax	Kero. Incl. tank wag.
Texarkana, Ark.	13.0	...	5.0	7.0
Fort Smith	14.5	...	5.0	7.5
Little Rock	17.25	...	7.5	8.0
Muskogee, Okla.	13.0	12.0	5.0	7.0
Oklahoma City	11.0	...	5.0	6.5
Tulsa	11.0	...	5.0	7.0

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag
Omaha	16.5	12.9	6.0	9.8
McCook	16.5	13.9	6.0	9.0
Norfolk	16.5	14.4	6.0	9.5
North Platte	17.8	14.9	6.0	10.0
Scottsbluff	18.5	15.5	6.0	11.4

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline Tank wag.	Gasoline Dlr.	Gasoline Incl. tax	Kero. tank wag.
Dallas, Tex.	12.0	16.0	5.0	7.0
Fort Worth	12.0	16.0	5.0	8.0
Houston	14.0	18.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank wag.	Incl. tax	Kero. tank wag.
Halifax, N. S.	24.5	10.0	18.5
St. John, N. B.	24.5	10.0	18.5
Montreal, Que.	23.5	8.0	16.0
Toronto, Ont.	23.5	8.0	16.0
Hamilton, Ont.	23.5	8.0	16.0
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	25.5	7.0	20.5
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.9
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Continental Oil Co. February 5 reduced tank-wagon and dealer gasoline 1.5 cents in Denver; February 7, reduced tank-wagon and dealer gasoline 2.5 cents in Albuquerque.

Socony-Vacuum Oil Co., Inc., advanced tank-wagon kerosene 0.3 cent in Buffalo February 5, 0.1 cent in Rochester February 6, and reduced tank-wagon kerosene 0.4 cent in Worcester January 18.

Standard Oil Co. of Nebraska February 3 reduced dealer gasoline 0.6 cent in Omaha.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of February 13, 1940

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 octane and below	.03⅜	.03⅝
63-66 octane	.03¾	.03⅞
67-69 octane	.04	.04⅛
70-72 octane (regular)	.04¼	.04⅜
60-62 400 grades:		
62 octane and below	.03⅜	.03⅝
63-66 octane	.03¾	.03⅞
67-69 octane	.04	.04⅛
70-72 octane (regular)	.04¼	.04⅜
68-70 360	.04½	.04¾

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below	.03⅜	.03⅝
63-66 octane	.03¾	.03⅞
67-69 octane	.04	.04⅛
70-72 octane (regular)	.04¼	.04⅜
60-62 400	.03⅜	.03⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
62 octane and below	.04⅛	.04½
63-66 octane	.04⅝	.04⅝
70-72 octane (regular)	.04⅝	.05⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
62 octane and below		.04⅛
70-72 octane (regular)		.05⅛

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.03⅜	.04
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04½
70-72 octane (regular)	.04½	.04⅝
60-62 400 grades:		
62 octane and below	.03⅜	.04
63-66 octane	.04	.04⅛
67-69 octane	.04⅛	.04½
70-72 octane (regular)	.04½	.04⅝
68-70 360	.04⅝	.04⅞

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor	.04¾	.04½
65 octane	.06¼	.06⅝
72-74 octane (regular)	.06½	.06¾

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.05¾	.07
58-60 400, 65 oct. and higher	.07	.08

EAST COAST (domestic)—

U. S. Motor, 65 and above:		
*New York (Bayonne)	.06½	.07
Philadelphia	.06½	.07
Boston	.06¾	.07⅛
Baltimore	.06½	.06¾
Charleston, S. C.	.06¾	.07⅛

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery ⅛ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
65-67 octane	.04⅝	.04¾
68-70 octane	.04¾	.05
70-72 octane (leaded)	.05	.05⅛

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.02
Grade 18-55	.02⅜	.02⅝

NORTH TEXAS—

Grade 26-70		.01⅝
Grade 18-55		.02⅛

CALIFORNIA—

75-85 375-390	.05¾	.06

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.02⅛

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03¾	.03⅞
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03¾	.03⅞
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.04	.04⅛

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03¾	.03⅞
42-44	.03⅞	.04

NORTH TEXAS—

41-43	.03¾	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03⅝	.03¾

ARKANSAS (Ark. and N. La. del.)—

41-43	.03¾	.03⅞

PENNSYLVANIA (inland refineries)—

45	.04⅞	.05⅛
46	.05	.05¼
47	.05⅛	.05⅜

CHICAGO (Based on Group 3)—

41-43	.03¾	.03⅞
42-44	.03⅞	.04

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05¾

NEW YORK (Bayonne, N. J.)—

41-43	.056	.065

***GULF COAST (domestic)—**

41-43		.04½

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03¾	.04
No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03⅜	.03½
No. 3 zero to 10, 28-32	.03⅜	.03½
No. 3, 15 and above, 28-32	.02¾	.03

NORTH TEXAS—

No. 1 prime white, 38-42	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03⅛	.03¼

ARKANSAS (Ark. and N. La. del.)—

No. 2 32-36		.03⅜

CHICAGO (Based on Group 3)—

Range oil	.03¾	.03⅞
No. 1 prime white, 38-40	.03¾	.03⅞
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03⅛	.03⅝
No. 2 dark, 32-36	.03⅜	.03½
No. 3, zero to 15, 28-32	.03⅜	.03½
No. 3, 15 and above, 28-32	.02¾	.03

NEW YORK (Bayonne, N. J.)—

*No. 1	.056	.065
*No. 2	.051	.060
*No. 4	.051	.060

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.70	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH TEXAS—

U.G.I. gas oil, under 35	.02⅝	.02¾
No. 5, low pour point, 18-22	.75	.80
No. 6, 15 and above, 8-14	.50	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.50	.55

PENNSYLVANIA (inland refineries)—

36-40	.04	.04½

CALIFORNIA—

Los Angeles:

30-40 gas oil, per bbl.	1.15	1.25
24 plus diesel, per bbl.	1.15	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.60	.75
10-17 (high sulfur)	.50	.65

San Joaquin Valley:

10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.15	1.25

San Francisco:

24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.80	.85

GULF COAST—

No. 2 fuel		.04¼
43-47 diesel		.04
48-52 diesel		.04¼
53-57 diesel		.04½
58 and above diesel		.04¾
Bunker C (bulk cargoes)	.97	1.05
Bunker C (bunkers)	.90	.95

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil	.051	.052
28-30 diesel (lighterage 6¼c per bbl.)	2.10	2.20
28-30 diesel (tank cars)	.05	.053
Bunker C (to ocean-going ships in N. Y. Harbor)		1.50
Industrial fuel (tank cars)	.035	.0375

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.28
150-160 D, 0-10		.25
150-160 D, 15-25		.24
150-160 E, 15-25		.24
100-110 D, 0-10		.24
Steam refined:		
600 dark green (untreated)		.08

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point	.29	.32½
15 pour point	.28	.30½
25 pour point	.26½	.28½
Steam refined:		
600	.16	.17
650	.18½	.19½
600 flash	.19	.20
630 flash	.22	.24

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.13
180-3		.14
180-4		.13½
200-3		.14½
200-4		.14
250-3		.16
250-4		.15½
280-3		.17
280-4		.16½
300-3½		.17½
400-3½		.18½
100-2½ paraffin oil		.07½
15-25 pour point:		
200-3		.14
200-4		.13½
250-3		.15½
250-4		.15
280-3		.16½
280-4		.16

GULF COAST—

Pale oils:		
200-3	.07¼	.07½
300-3	.07¾	.08
500-3½	.08½	.09
750-3½	.09	.09½
1,200-3½	.09¾	.10
2,000-4		.10¼
Red oils:		
200-5-6	.07	.07¼
300-5-6	.07½	.07¾
500-5-6	.08¼	.08¾
750	.08¾	.09¼
1,200-5-6	.09⅝	.09⅝

CALIFORNIA (moving to dom. market)—

Pale oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:		
Zero pour point		.29½
10 pour point		.28½
15 pour point		.27½
25 pour point	.26	.27
200 vis. at 70° F., 3 color:		
Zero pour point		.31½
10 pour point		.30½
15 pour point		.29½
25 pour point	.28	.30

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.06	.06⅛

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.05⅝	.06
124-126 (A.m.p.) w.c. scale	.05⅝	.06⅛

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax	.0575	.0600
128-130 (A.m.p.) wax	.0600	.0625
130-132 (A.m.p.) wax	.0625	.0635
133-135 (A.m.p.) wax	.0635	.0650
135-137 (A.m.p.) wax	.0650	.0675
Crude scale:		
124-126 (A.m.p.) w.s.	.0550	.0575
124-126 (A.m.p.) y.s.	.0550	.0575
Petrolatum in barrels, carload lots:		
Dark green	.03500	.03625
Amber	.03625	.0400
Extra amber	.03875	.0425
Lily white	.06625	.0700
Snow white	.07625	.0800
Cream	.05625	.0600

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05½	.05⅝
60-62 400	.05¼	.06⅛
61-63 390	.05¼	.06⅛
64-66 375	.05⅝	.06⅛

LOS ANGELES—

U. S. Motor grades:		
60-65 octane	.05½	.05⅝
65-69 octane	.05⅝	.06¼
Above 69 octane	.06¼	.06½

KEROSENE

GULF COAST—

41-43 water white	.04¼	.04½

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s.) in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.23	.24
630 S.R. unfiltered	.25	.26
600 flash, S.R.	.26	.28½
630 flash, S.R.	.32	.33
Bright stock:		
Light, 25 pour point	.36	.38

NEUTRAL OIL

200-3 color	.38	.38½
150-3 color	.36	.37

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.	.0600	.0625
125-127 A.m.p.	.0650	.0675
128-130 A.m.p.	.0700	.0725
133-135 A.m.p.	.0750	.0775
135-137 A.m.p.	.0800	.0850
Crude scale:		
124-126 w.s.	.055	.05750
124-126 y.s.	.055	.06625

EQUIPMENT PROGRESS...

Weakest Point of Drill Stem Is Eliminated by Hughes Device

The introduction of the Hughes Unitized drill stem to the drilling industry marks the successful culmination of more than three years of intensive development, according to Gordon Richmond, general sales manager of the Hughes Tool Co.

"The advent of deeper drilling emphasized the necessity for an improved connection between tool joint and drill pipe," said Mr. Richmond; "one that would develop the maximum strength of both. In developing the 'Flash-Weld' method of attaching tool joints to drill pipe, the Hughes Tool Co. has entirely eliminated pipe threads, which heretofore have been the 'weak point' of the drill stem. Of equal importance, this 'unitizing' has been accomplished without compromising in the physical properties that are best suited respectively for tool joint and drill pipe.

"Pipe of this construction is available from the various pipe mills, most of which carry stocks at Hughes Tool Co. plant for immediate delivery."

Prices and complete information on the Hughes Unitized drill stem are shown in the 1940 catalog of the Hughes Tool Co., which is now being distributed.

Smith Engineering Co. Winner in Litigation Lasting 9 Years

Nine years litigation, involving the engineering and construction of the oil refinery at Laurel, Mont., apparently ended recently when Smith Engineering Co. (Pennsylvania), of Kansas City, Mo., sold to J. B. Swartz, Findlay, Ohio, a judgment and mechanic's lien held by Smith against W. E. Rice, of Great Falls, Mont., as trustee of Laurel Oil & Refining Co. The judgment, according to attorneys of Smith, was for $93,146.21, plus interest, attorneys' fees and court costs.

Laurel sought to obtain damages for alleged failure of Smith to fulfill a contract for the engineering and construction of the Laurel refinery. This plant was built by Smith to obtain certain results in the refining of Oregon basin crude oil produced near Cody, Wyo. Laurel was a new corporation organized in 1929 for this purpose.

The Laurel company refused to pay a balance of $93,146.21, contending that the plant had failed to meet several guarantees of the contract. The Smith company filed a mechanic's lien in 1930, and subsequently started suit in the U. S. District Court for Montana. Laurel filed suit in the Yellowstone County District Court against Smith and American Surety Co., of New York, which had acted as surety on the engineering firm's bond, to recover in excess of $600,000 damages claimed to have been suffered by Laurel because of the alleged failure of the Smith company to meet all conditions of the contract.

The two cases were consolidated for trial, and in 1935 they came up for trial before a master in chancery, whose findings were entirely against Smith, and supported W. E. Rice, trustee in bankruptcy for Laurel. The federal court adopted the findings of the master in chancery, denying relief to Smith and ordered judgment entered in favor of Mr. Rice for $438,931.21, with interest, fees, and costs.

The court's judgments were appealed by Smith to the U. S. Court of Appeals in San Francisco, which reversed the judgments in both cases, denying relief to Laurel in its damage action; assessing $27,000 costs against the refining company and in favor of the Smith company; and at the same time giving Smith a judgment for the full amount originally asked with a mechanic's lien against the refinery, together with the right to foreclose against the property. This lien became a first lien against the plant.

Laurel filed in the U. S. Supreme Court at Washington a petition for a writ of certiorari. This petition was denied, as was an application by Laurel for a rehearing. A. J. Smith, of Kansas City, is president of Smith Engineering Co.

Big Pumping Unit in Illinois Oil Field Powered by Hercules

An Ideco DT-123-23-hp. pumping unit, powered by Hercules engine Model JXD, has recently been installed by Max Pray Oil Co. The well is the No. 1

Dean, Devonian discovery well at Sandoval in the Illinois field.

Reported to be the largest pumping unit installed thus far in the Illinois field, the unit is operating at a depth of 2,950 ft. The Hercules engine runs continuously, 24 hours a day. A second Hercules Model JXD, 4 by 4½ in., has been purchased by Max Pray Oil Co. for service in the Lake Centralia field.

TRADE LITERATURE

WORTHINGTON PUMP & MACHINERY CORP., Harrison, N. J.—Bulletin W-321-b14, balanced Monobloc centrifugal pump, with pump and motor an integral unit.

BROWN INSTRUMENT CO., Philadelphia, Pa.—Calendar for 1940. Presents boiler-room information in humorous way and contains feed-water and saturated-steam temperature tables, $\%CO_2$ chart, evaporation chart and engineering tables.

BABCOCK & WILCOX TUBE CO., Beaver Falls, Pa.—Technical data card No. 4, giving relative creep-stress data on Croloys 2 and 2¼ and other materials in the same range in the high-temperature tubing field.

THE PERMUTIT CO., 330 West Forty-second Street, New York.—Bulletin 2279, Permutit master pilot valve.

ALLIS-CHALMERS MANUFACTURING CO., Milwaukee, Wis.—Bulletin B 6043, Chlorextol transformers.

PEERLESS PUMP CO., 301 West Avenue 26, Los Angeles, Calif.—Bulletin, "100,000 Raindrops From Underground for 1 Cent."

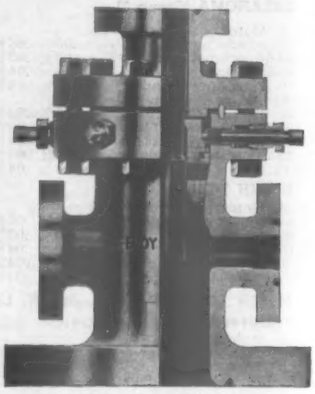
JOHNSON BRONZE CO., New Castle, Pa.—Catalog L-2, new size listing of Ledaloyl self-lubricating bearings.

CRANE CO., 836 South Michigan Avenue, Chicago.—January-February number the Valve World.

GUARDIAN ELECTRIC, 1623 West Walnut Street, Chicago.—Bulletin, Guardian gage.

Running, Landing Simplified by Newest McEvoy Tubing Head

A high-pressure tubing head featuring a special hanger to permit running and landing of tubing through the christmas tree has been announced by McEvoy Co., Houston, Tex.



The new head, McEvoy type ATSC, can support the longest strings of tubing safely, according to the manufacturer. It saves time at a critical period during completion because tubing collars and hanger nipple may be run through the christmas tree under full pressure control at all times. Tubing may be raised any distance off bottom after setting packer and may be locked in place by means of set screws.

Extra-thick oil-resistant packing is used to insure a perfect seal between strings. Should reworking become necessary, the tubing-head bonnet can be removed and blowout preventers installed for complete removal of the tubing. The new head is available to 10,000 lb. test pressure.

Buckeye Acquires Emsco Patents

Buckeye Traction Ditcher Co., Findlay, Ohio, has acquired all Emsco tractor-equipment patents, also those patents under which Emsco was licensed or had working agreements and all Emsco applications for patents. William H. Schomburg, executive vice president of Buckeye, also announces that this tractor equipment is being manufactured in Findlay exclusively, and sales are handled also from the Buckeye general office in Findlay. A. E. Whitehouse & Co., 80 Broad Street, New York, will handle all export sales on the complete Buckeye line. The tractor equipment involved consists of trailbuilders, bulldozers, rippers and tractor power-control units.

Infringement Claim Denied

Court action brought by Haynes Stellite Co. against the Osage Metal Co., Inc., of Oklahoma City, Okla., for alleged infringement of both process and apparatus patents, is held invalid, according to a decision of U. S. Circuit Court of Appeals affirming Judge Murrah's decision in U. S. District Court for Western District of Oklahoma. Haynes Stellite claimed that Osage Metal Co., Inc., infringed on Claim 2 of patent No. 1924976, issued August 29, 1933, covering an apparatus for fusing and casting alloys of high melting temperatures; and Claims 1, 2 and 4 of patent No. 1962705, issued June 12, 1934, covering a process for fusing and casting such alloys.

Protects Against Deterioration

The B. F. Goodrich Co., Akron, Ohio, is offering a synthetic coating for belt covers which, on the basis of tests, will greatly reduce the effects of aging, according to the manufacturers. During idleness belting covers may suffer greater deterioration from sunlight and air than when the belting is in use. This deterioration also takes place when belts are in storage.

AMONG EQUIPMENT MEN...

SUPERINTENDENTS, ENGINEERS TAKE WELDING COURSE

A course for welding engineers and designers was given in Tulsa under the auspices of the Tulsa chapter of the American Welding Society from February 5 to 9. It consisted of lectures and demonstrations given at the College of Petroleum Engineering, University of Tulsa, by E. W. P. Smith, chief consulting engineer of Lincoln Electric Co., Cleveland, Ohio, who has been conducting these courses at different points in the country. He went to Tulsa from Boston. Arrangements for the course were made through Big Three Welding Equipment Co., distributor of Lincoln welders and Fleetweld welding rods in Oklahoma. In the class there were 22 foremen, 3 inspectors, 44 draftsmen and engineers, 24 welders, 6 layerouts, and 12 superintendents and assistant superintendents. Twenty of these men are employed by pipe-line companies and 20 by producing and refining organizations. Most of those in the course are employed by manufacturers.

Carroll Made Sales Manager

John C. Carroll, whose appointment as sales manager is announced by Engineering Laboratories, Inc., Tulsa, brings a fund of technical knowledge to his new post. The company points out that this will be of value to purchasers of the highly specialized equipment which it manufactures, such as bottom-hole pressure gages, thermometers, samplers, portable and truck-mounted shot-hole drills, water trucks, pipe-line detectors and instruments. Besides having years of experience with a major oil corporation, he served as a chief flight instructor in an aviation school for 5 years and later was captain on a sky chief between Pittsburgh and Chicago. Mr. Carroll will work from the company's headquarters in Tulsa.

Sales Engineer in Southwest

C. F. Succop, president of American Roller Bearing Co., Pittsburgh, Pa., has announced the appointment of his son Larry N. Succop as sales engineer to represent the company in the Southwest. Larry Succop was graduated from Shadyside Academy, Pittsburgh, Pa., attended Yale for 2 years and completed his engineering education at Carnegie Institute of Technology, Pittsburgh. After spending a year in the engineering department of the American Roller Bearing Co. plant he has taken up his field duties with headquarters in Houston, Tex

Williams & Kilsby is New Firm

A new partnership, Williams & Kilsby, with offices in Standard Oil Building, Los Angeles, Calif., has been formed by W. Woodward Williams and Perry Kilsby. Mr. Williams recently resigned as general manager of Babcock & Wilcox Tube Co. Mr. Kilsby has acted as sales representative on the West Coast for companies manufacturing various steel products. These accounts, comprising Babcock & Wilcox Tube Co. of Beaver Falls, Pa., manufacturing seamless tubes; Sivyer Steel Casting Co., Milwaukee, Wis., return-bend headers and tube supports, and Wm. F. Klemp Co. of Chicago, steel gratings and flooring, will now be represented on the West Coast by this partnership. In addition, it will represent exclusively in that territory Pittsburgh Crucible Steel Co. with general offices in Pittsburgh and plant in Midland, Pa., in the sale of carbon and alloy grades of billets, blooms and bars, both hot-finished and cold-drawn.

Louis Desjardins, formerly with Aero Exploration Co., has opened a consulting office in the Aero Exploration Building, 1850 South Boulder Avenue, Tulsa, to specialize in geologic mapping, with the aid of aerial photographs.

Difficulty in Getting Red's Number

They met at the Caterpillar Tractor Co.'s exhibit at the National Road Show in Chicago, and apparently they couldn't get Red's number. They are Francis

Fabick, Fabick Tractor Co., St. Louis, Mo.; J. L. Robinson, manager of the West Michigan Consumers' Co., Muskegon, Mich., and H. L. "Red" Davis, superintendent of the eastern division, Williams Brothers Co., pipe-line contractors.

Reid Buys Lycoming Motor Co.

Lycoming Motor Co., of Williamsport, Pa., which manufactures marine and industrial engines, has been purchased by Joseph Reid Gas Engine Corp., Oil City, Pa., it was announced last week by W. R. Dunlap, vice president and general manager of the Reid company. Lycoming Motor Co. is a subsidiary of Aviation Manufacturing Corp., which makes aviation motors and propellers. The plant in Williamsport is given over to that work exclusively. Equipment, tools, stock, etc., of Lycoming will be moved to Oil City and its products turned out at the Oil City plant. About 10 key men will be taken to that place from Williamsport. The purchase involves shipment of 35 to 40 carloads of tools, jigs, dies, patterns, records, inventory materials and from 200 to 300 finished engines.

DOWELL REPRESENTATIVES HOLD ANNUAL CONVENTION

During the week of January 7 the general headquarters of Dowell, Inc., Tulsa, was the focal point for 51 Dowell executives, technicians, geologists, sales and advertising representatives, and their wives. The annual convention marked the eighth anniversary of the company and the perfecting of inhibited acidizing for oil and gas wells. Representatives came from every principal oil-producing area in the country. Dr. W. H. Dow, president of the Dow Chemical Co., and A. P. Beutel, president of Dowell, Inc., both from Midland, Mich., were among the visitors. Evenings were devoted to social affairs, the high spot being a chuck-wagon dinner with all in costumes representative of the Southwest 50 years ago.

Kneeling: L. R. Austin, H. E. Hougen, P. Shelley, P. E. Fitzgerald, L. D. Smithers, C. M. Bryant, R. A. Brewer. First row, seated: J. Cummin, W. W. Love, M. W. Frack, H. W. Ross, Dr. J. J. Grebe, J. H. Adkison, C. E. Mangold, L. A. Courter, N. R. Crawford (vice president and general manager of Dowell, Inc.), A. P. Beutel, Dr. W. H. Dow, F. Holland, R. D. Shaw (sales manager). Second row, standing: Dr. W. R. Veazey, D. G. Hefley, W. D. Miller, W. B. Tennis (Dowell's Canadian office), F. I. McConnell, W. E. Reardon, G. L. Leach, W. J. Russell, J. H. Courtner, J. G. Staudt, O. N. Maness, J. B. Stone, G. F. Williams, J. L. Coss. Third row, standing: W. S. Day, Ormand Barstow, N. D. Griswold, Dr. C. F. Prutton, A. O. Bedford, R. L. White, K. L. Flanders, Dr. F. N. Alquist, L. W. Lee, J. J. Johnson, C. Penhaligen, M. L. Stirling, O. W. Lyons. Fourth row, standing: J. H. Finney, D. L. Conner, C. T. Young, L. C. Chamberlain.

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A complete SERVICE EXPERTS in every department of the Oil Business at your SERVICE a REAL SET-UP. The best opportunity ever offered you. Leases in large or small lots at
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FOR SALE Oil and gas leases and small production located in Kentucky shallow field, and leases located in Clay County, Tenn. Have for sale two tracts of proven Fluorspar and Zinc deposits; reports furnished on request. W. P. Harley, Bowling Green, Kentucky.

CHAVES COUNTY, NEW MEXICO
Subdividing 160 acres in tracts as small as 2½ acres. Share in oil, gas and minerals under larger tract. A favorable report by reputable engineer furnished. Write for information. HARRY S. WRIGHT, Wright Building, Farmington, New Mexico.

NEW MEXICO WEEKLY OIL REPORT.
Send for sample copy.
BOX 968, HOBBS, N. M.

ARIZONA GOLD MINE. 40,000 tons ready to mill, Assays $24 per ton. Near big producers. Need equipment. Will sell 10% interest in Lease-Option for $3000. Address Box K-475, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE: Oil and gas lease, SE 33-17-5, Lincoln Co., Okla. So. Cushing field. Write 1233 Dorothy Dr., Glendale, Calif.

HAVE 500-acre block of Oil and Gas leases opportunity for Bartlesville sand production at approximate depth 1800 feet. Very best of subsurface geology; need ten thousand dollars additional capital for development of property on an interest and partnership basis. Cannot too strongly emphasize the opportunity this property offers for substantial production at a reasonable development cost. Don't ask for maps; let me show you the block. Address Box K-493, The Oil and Gas Journal, Tulsa, Oklahoma.

WATCH GEORGIA — Drilling-Sands — Showings—For drilling deals write C. W. Deming, Reg. Dealer, Waycross, Georgia.

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We have for sale many oil and gas producing properties, complete reports, various sizes, various states, also Royalties, Drilling Blocks, Oil Payments.
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Leases and Drilling Blocks

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INDIANA has no proration. I can locate you on high-pressure Trenton limestone structures. Trenton limestone oil maps showing sections, $2.00. P. J. Daugherty, Field Geologist, 518 N. East St., Indianapolis, Ind.

SACRIFICE for immediate sale, choice Lea County, New Mexico, leases near production. 120 acres in 17 S., 32 E.; 80 acres in 17 S., 36 E.; 80 acres in 18 S., 34 E.; 80 acres in 21 S., 34 E. Box 247, Burbank, California.

WELL LOGS. Drillers' logs of approximately 4,000 wells drilled in New Mexico are available from Well Log Division, New Mexico Bureau of Mines & Mineral Resources, Socorro, New Mexico. Write for price list C.

KENTUCKY
We represent two corporations owning approximately sixty thousand acres of mineral lands in Laurel, Whitley, and McCreary Counties. Tracts vary in size up to five thousand acres. Owners are interested in leasing or selling all or part of their holdings.
DOLLE, O'DONNELL & CASH
3715 Carew Tower, Cincinnati, Ohio.

FOR SALE—Lease and ⅛ royalty. 10-yr. lease and ⅛ royalty for life of lease on S.E. 28-20-10, Major County, Okla. See me at 519 S. 8th St., Kingfisher, Okla. J. J. Bebout, Owner.

HURRY: Driller drilling his own well, shallow offset proven, offers substantial interest to party with very few dollars to help buy casing. HERE is an OPPORTUNITY. P. O. Box 705, Wagoner, Okla.

400 ACRES in Fayette County, 200 acres in Clay County, near production, 140 acres in Wayne County, Illinois. There are already hundreds of producing wells in each of these counties. Have 1,000 acres in Indiana, 2,000 acres in Northwest Missouri. All straight commercial leases, prices reasonable. Leo H. Graves, Farina, Illinois.

FOR SALE: Non-producing leases in Rooks County, Kansas. Near production. Producing leases in Jefferson County, Oklahoma. Good equipment. Write Box K-480, The Oil and Gas Journal, Tulsa, Okla.

HAVE 4,000 acres; Western Indiana, 8 ft. oil show at 1,000 ft. Will deal with responsible company or driller for development. William Morgan, Perrysville, Ind.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms Colonial Charter Co., Wilmington, Del.

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CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan.

JOHN MORRIS, Box 5411, Philadelphia studied records 5000 financial houses. Found only 191 buy new issues. $4.00.

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When all other methods fail, employ my divining or dowsing method. If oil exists this method finds it. Faults, broken treacherous areas accurately defined. Our Watson #2, first producer Wilmington, Calif. field, located by this method. More reliable than mechanical geophysics. Ask any unbiased oil authority. Many years experience. A wise man investigates. George Miller, 1548 Post, Torrance, Calif.

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LAND in Sharkey and Washington Counties, Mississippi. Improved and unimproved. Land not under lease. Box 2701, Memphis, Tennessee.

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SINCE 1908 Burkhart's legal forms—servicing Mid-Cont. oil fields, including Ill., La., Mo., Ind. & Ky. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So. Cinn., Tulsa, Oklahoma.

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Tulsa, Oklahoma.

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309 Webster, Houston, Texas

Mailing Lists

ROYALTY Lists. Oil Investor Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

Equipment Wanted

WANT Portable Rotary to drill 1,500 feet. Lease or contract. A. Frailey, 3830 Walnut St., Kansas City, Missouri.

WANTED: Ft. Worth, Wichita or Bucyrus-Armstrong Spudder complete and in perfect condition. State price. J. P. Bell, 434 Alhambra Circle, Coral Gables, Fla.

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We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

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"Motor's Sake" use LUBRICATING GAS-O-LINE

AND SAVE

3 to 6c on GASOLINE. 25 to 40% Motor Expense. Original and Genuine lubricating Anti-Knock Additive, or highest powered Gasoline on American Market. Prove it for yourself. Introductory Delivered Price 99c as $2.50 package. Responsible Dealers Wanted.

LUBRICATING GASOLINE CO., HOUSTON, TEXAS

FOR SALE: O. C. Whse.—6700 Ft. 2" 10 Thd. 4.6# used insert seamless tubing C-45—I.T.I.O. Co., Bartlesville, Okla.

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25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list. Terms to suit.

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Government crawler type Caterpillars, 5 ton $375, 10 ton $695, Slightly used. Perfect condition.

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FOR SALE—At Bartlesville, 10-20 McCormick Deering tractor with Shaffer front end senior Bearcat Winch; at Oklahoma City, 1—Muskogee Model "B" Skid type well service machine with PA-100 International Motor. I.T.I.O. Company, Bartlesville, Oklahoma.

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25,000 ft. of 4" seamless drill pipe equipped with both full hole and regular tool joints.
10,000 ft. of 7" 24# seamless casing, once run.
5,000 ft. of 7" 26# seamless casing, once run.
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We also have several complete drilling rigs, one with Unitized Draw Works capable of drilling 6,500 ft. The above is located in Shreveport, Louisiana.

We also have 30,000 ft. of 6" screw line pipe located in Oklahoma.

Wire, Write or Phone for Prices

Louisiana Iron & Supply Co.
Shreveport, Louisiana

FOR SALE—$80,000.00 Rotary Rig complete. 10-in. Emsco Unit, 125-350 Boilers, etc. Practically new. Bargain. Roberts Bros., Box 1726, Houston, Texas.

FOR SALE: Oklahoma City Warehouse—4600' new & used 1½" 11½ Thd. 2.75# Regular C-45 S.S. Tubing. I.T.I.O. Company, Bartlesville, Oklahoma.

EQUIPMENT FOR SALE

2—Used Full Electric Diesel Powered Drilling Rigs—complete with Drill Pipe.
1—Used Electrical-Mechanical Diesel Powered Drilling Rig—Less Drill Pipe.
1—Used Complete Large Steam Drilling Rig.

All in first class condition. For inventory and Prices call or write

K. S. RICHARDS
P. O. Box 830 Ph. 2-1161 Fort Worth, Tex.

FOR SALE: Bartlesville Warehouse—4300' New & 2600' used 1½" 2.731# Butt Weld Reading Wrot Iron Tubing. I.T.I.O. Company, Bartlesville, Oklahoma.

FOR SALE: 7 Ft. x 20 Ft. Butane welded storage tanks 125# WP, capacity 6000 gallons. I.T.I.O. Co., Bartlesville, Okla.

FOR RENT: At Oklahoma City, new 7,000' string 3½" O.D. 13.3# seamless left hand fishing drill pipe with tool joints. I. T. I. O., Bartlesville, Okla.

FOR SALE: Orifice and Positive Gas Meters. GEO. R. MILNER, Okmulgee, Oklahoma.

FOR SALE—55-Hp. Bruce McBeth Twin Cylinder Natural Gas Engine, 275 r.p.m., 11-in. bore. W. C. Hudson, Brilliant, Ohio.

FOR SALE—Seminole, Oklahoma, warehouse steel portable building 20' x 86' x 10' and 18'. I. T. I. O. Company, Bartlesville, Oklahoma.

FOR SALE: 1—Type G-MB 200 HP Type X Horizontal, two cycle, direct driven Cooper-Bessemer Compressor, equipped with 4 stage compressor cylinders and inter-coolers. Box K-495, The Oil and Gas Journal, Tulsa, Oklahoma.

FOR SALE at Oklahoma City Warehouse, large quantity 4¾" o.d. 16#, 5" o.d. 15# slotted-perforated liner and Stanciff screen pipe. I. T. I. O. Company, Bartlesville, Okla.

Situations Wanted

REFINERY SUPERINTENDENT, ENGINEER. Capable and experienced in the operation, maintenance and construction of all modern refining operations. Considerable management background with excellent record. Technically trained. Address Box K-474, The Oil and Gas Journal, Tulsa, Oklahoma.

COMPETENT, successful Manager: For Oil Company, Drilling Contractor or extensive oil interests. 20 years' experience. If your operations are not showing sufficient profit write P. O. Box 134, South Pasadena, California.

REFINERY Superintendent: 10 years' experience, desires connection. Box K-481, The Oil and Gas Journal, Tulsa, Okla.

REFINERY ENGINEER, Ch.E., Ph.D., married, 19 years' diversified experience in lub oils, thermal and catalytic reforming and cracking, polymerization, hydrogenation and alkylation processes and engineering design. Desires position with oil company interested in progressing along catalytic lines. Box K-494, The Oil and Gas Journal, 415 Lexington Ave., New York City, N. Y.

Help Wanted

SITUATION OPEN — California. Required by prosperous independent company (producing, refining, marketing) energetic and vigorous administrative executive. Strong background of commercial experience in oil industry essential and knowledge of at least one branch of operators activities. Good opening for selected candidate. Apply stating experience, reference (copies only) as to character and ability, salary expected to Box K-451, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED—A good employer, by a reliable middle aged gentleman, married, experienced in any department of an oil or supply company, field or office work. Like hard work and long hours. Box K-476, The Oil and Gas Journal, Tulsa, Okla.

CHEMICAL ENGINEER with two to three years' experience in natural gasoline plants for work in development department of major oil company in Southwest. In reply give complete information on training, experience, positions held, salary desired, and enclose picture. Address Box K-492, The Oil and Gas Journal, Tulsa, Okla.

A large, non-major, integrated oil company desires an

Assistant to
VICE PRESIDENT
in Charge of Production.

Applicants must have experience in exploratory development and be capable of advancing to head of production department. Our client's employees are advised of this advertisement, so have no hesitancy in sending full particulars which will be held strictly confidential. Address: J. C. Bull, Inc., 101 Park Ave., New York, N. Y.

PETROLEUM Engineer with successful sales experience in oil well pumping equipment. Preferably under 35 years of age. Qualifications and full particulars desired in first letter. Strictly confidential. Address Box K-491, The Oil and Gas Journal, Tulsa, Oklahoma.

SITUATION open with large Mid-Continent Refinery for refinery draftsman-engineer. Excellent opportunity. Give full details, including salary desired, first letter. Members of our organization notified. Address Box K-490, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: Refinery Operator who has had actual experience as stillman and treater of both light and heavy oils and cracking. Chilling and dewaxing experience very desirable. Reply to Box K-482, The Oil and Gas Journal, Tulsa, Okla., giving age, experience, training and salary desired.

WANTED: Accepting applications for following: Wax plant engineers, Centrifuge Dewaxing operators and a 1st class refinery pipe fitter, also Civil Engineer who has had refinery design and construction experience. Reply to Box K-483, The Oil and Gas Journal, Tulsa, Okla., giving age, experience, and salary desired.

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the February 1 issue. All changes in crude-oil-price schedules will be published completely in the first issues following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, Louisiana	1.03
Smackover, Arkansas, heavy	.73
Illinois basin	1.05
Pecos County, Texas	.78
Lance Creek, Wyoming	.77
Bradford, Pennsylvania	2.75

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

	Signal Hill, California*	Oklahoma, Kansas	Gulf Coast Texas
14-14.9	$.065	....	....
15-15.9	.65	....	....
16-16.9	.65	....	....
17-17.9	.65	....	....
18-18.9	.65	....	....
19-19.9	.69	....	$0.86
20-20.9	.73	$0.70	.88
21-21.9	.78	.72	.90
22-22.9	.82	.74	.92
23-23.9	.86	.76	.94
24-24.9	.90	.78	.96
25-25.9	.95	.80	.98
26-26.9	.99	.82	1.00
27-27.9	1.03	.84	1.02
28-28.9	1.07	.86	1.04
29-29.9	1.10	.88	1.06
30-30.9	1.14	.90	1.08
31-31.9	....	.92	1.10
32-32.9	....	.94	1.12
33-33.9	....	.96	1.14
34-34.9	....	.98	1.16
35-35.9	....	1.00	1.18
36-36.9	....	1.02	1.20
37-37.9	....	1.04	1.22
38-38.9	....	1.06	1.24
39-39.9	....	1.08	1.26
40-40.9	....	1.10	1.28

*Effective February 1, 1940.

Crude-Oil Price Changes

The Producers Refining Co., a Montana concern, announces that retroactive to January 1 its posted price for Cut Bank, Mont., crude is $1 per barrel and for Kevin-Sunburst, Mont., crude, 80 cents per barrel.

Effective February 10, Standard Oil Co. of Louisiana posted a flat price of $1 per barrel for Dorcheat, Columbia County, Arkansas, distillate and announced that it had withdrawn posting in the Evangeline field in coastal Louisiana.

Mississippi Wildcats

(Continued from Page 103)

set 7-in. csg. 4,490 ft.; perf. 4,426-56 ft.; comp. 475 B.P.D., ¼-in. ck; T.P. 240 lb.

Hassie Hunt's No. 1 Ida Fair, C NE SW SE Sec. 13-10n-3w. Woodruff sd. 4,585-4,605 ft. (oil); Stevens sd. 4,945-73 ft. (possibly S.W.); set 7-in. csg. 4,645 ft. (cor.); drld. out to 5,060 ft.; P.B. 4,610 ft. and perf. 4,585-4,606 ft.; comp. 336 B.P.D., 1-in. ck.; T.P. zero.

Hassie Hunt's No. 2 Ida Fair, C SE SW Sec. 13-10-3. T.D. 2,761 ft.; running 10¾-in. csg.

Hassie Hunt's No. 1 A. G. Johnson, C NE NE Sec. 14-10-3. R.U.

Edgar Johnson's No. 2 Brumfield, C SW SE Sec. 2-10-3. Drlg. sd. & sh. 475 ft.

Jones & O'Brien Bros.' No. 1-C Stevens, C SE NE Sec. 11-10-3. Drlg. sh. & strks. sd. 2,464 ft.

Robt. P. Lake's No. 1 Exum Est., C SW NE Sec. 13-11-2. M.I.M.

J. R. Lockhart et al's No. 1 Frank Brooks, W½ SE NW Sec. 17-10-2w. Drlg. sdy. bl. sh. 4,940 ft.

R. B. Sanders' No. 1 E. W. Milner, 369 ft. S, 330 ft. E, NW cor. Sec. 18-10-2. Loc. abd.; will not drill.

T. B. Slick, Jr.'s No. 1 W. S. Atkinson, 629 ft. S, 556 ft. E NW cor. NW NE SW Sec. 3-10-3. O.W.D.D.; O.T.D. 5,083 ft.; R.U. to deepen 600 to 1,000 ft.

Union Prod. Co.'s No. 3 Perry, C NW NE Sec. 24-10-3. Set 10¾-in. csg. 605 ft.; Woodruff sd. 4,585-4,614 ft.; cor. T.D. 4,655 ft. 7-in. csg. 4,570 ft.; ran tbg.; turned into tanks and went dead; swbg.

Union Prod. Co.'s No. 4 Stevens, C SE SW Sec. 12-10-3. T.D. 4,825 ft.; Woodruff sd. 4,414-49 ft.; sd.&sh. 4,810-24 ft.; D.S. tested 360 ft. oil, mud and wtr. in 10 min., ¼-in. ck.; 7-in. csg. 4,550 ft.; comp. 750 B.P.D., ½-in. ck.; C.P. 200 lb.; T.P. 50 lb.

Union Prod. Co.'s No. 6 Stevens, C NE NE Sec. 13-10-3. Loc.

Union Prod. Co.'s No. 9 Stevens, C SW SW Sec. 24-10-3. T.D. 4,793 ft.; Woodruff sd. 4,733-67 ft.; ran 7-in. csg. 4,795 ft.; perf. 4,758-68 ft.

Union Prod. Co.'s No. 10 Stevens, C NW NW Sec. 12-10-3. Drlg.

Union Prod. Co.'s No. 11 Stevens, SW SE Sec. 12-10-3. Drlg.

Union Prod. Co.'s No. 13 Stevens, C SW NW Sec. 12-10-3. R.U.

Union Prod. Co.'s No. 6 Woodruff, C SW NW Sec. 13-10-3. Set 16-in. csg. 67 ft., 10¾-in. csg. 1,213 ft.; drlg. bl. sh. 4,156 ft.

Whigate Oil Co.'s No. 1 Robertson, 330 ft. NW cor. Sec. 20-10-2.; R.U.; S.D.

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